# DIGITAL TRANSISTOR

**APPLICATION:**
- Inverter, Driver & Interface Circuits

**FEATURES:**
- Replaces up to three parts (1 transistor & 2 resistors) with one part
- Available in a variety of surface mount or leaded (thru-hole) packages
- High packing density requires less board space
- Cost savings due to fewer components to purchase & stock & handle
- Improved reliability due to reduced number of components
- Available in PNP & NPN polarities
- Available in 100 mA & 500 mA devices
- Decreased parasitic effects
- Double diffused silicon, Epitaxial Planar Transistor with thin film internal bias resistors

**EQUIVALENT CIRCUITS:**



DTA & DTB SERIES

DTC & DTD SERIES
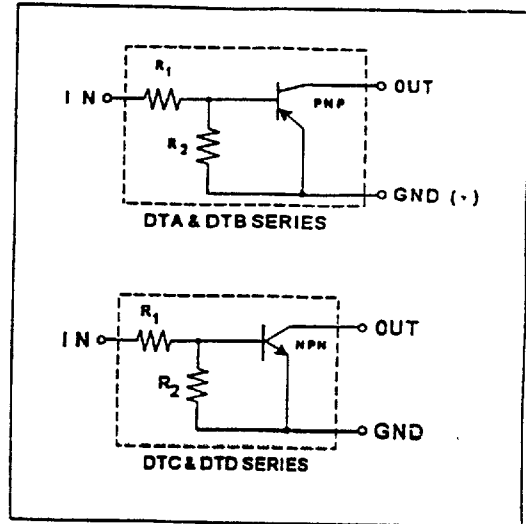
**MAXIMUM RATINGS:**

| PARAMETER | PNP | | NPN | | UNITS |
|---|---|---|---|---|---|
| | DTA | DTB | DTC | DTD | |
| Power Supply Voltage ($V_{cc}$) | 50 | 50 | 50 | 50 | Volts |
| Collector Current ($I_c$) | 100 | 500 | 100 | 500 | mA |
| Junction Temperature ($T_j$) | +125 | +125 | +125 | +125 | °C |
| Storage Temperature ($T_{stg}$) | -55 to +125 | -55 to +125 | -55 to +125 | -55 to +125 | °C |
| Power Dissipation ($P_d$) | Rated by Package -- See Table Below | | | | mW |

**MAXIMUM POWER DISSIPATION BY PACKAGE: Pd (mW)**

| Test Condition | SURFACE MOUNT DEVICES | | | | THRU-HOLE (LEADED) DEVICES | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | SST (SOT-23) | SMT (SC-59) | UMT | EM3 | SPT (TO-92S) | ATR | ATV | FTR | FTL |
| Free Air/PCB | 200 | 200 | 200 | 150 | 300 | 300 | 300 | 300 | 300 |
| Ceramic Substrate | 350 | 350 | 350 | 250 | — | — | — | — | — |

**DIGITAL TRANSISTOR CONSTRUCTION:**
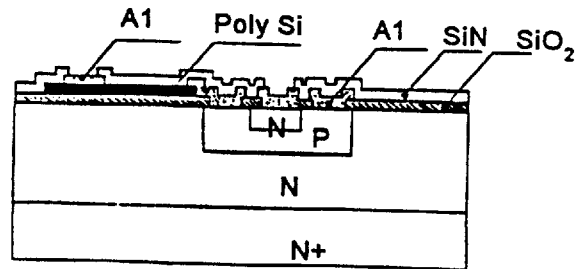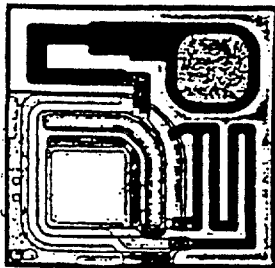


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## • Digital Transistor Summary Table
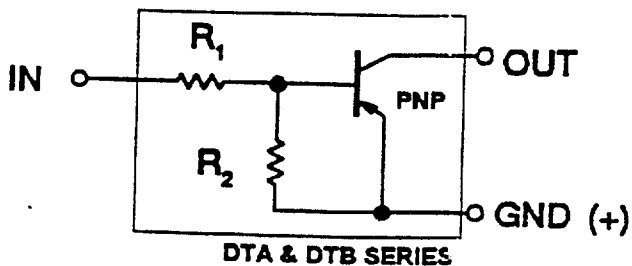


DTA & DTB SERIES
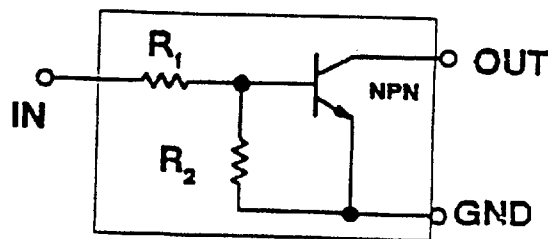


DTC & DTD SERIES

| Resistor Values | | PNP $I_c$(Max) = 100 mA 2N3906 | PNP $I_c$(Max) = 600 mA PN2907A/2N4403 | NPN $I_c$(Max) = 100 mA 2N3904 | NPN $I_c$(Max) = 500 mA PN2222A/2N4401 |
|---|---|---|---|---|---|
| $R_1$ | $R_2$ | | | | |
| 1/K | 1K | - | DTB 113E | | DTD 113E |
| 1/K | NONE | DTA 113T | - | - | - |
| 1/K | 10K | DTA 113Z | DTB 113Z | DTC 113Z | DTD 113Z |
| 10K | 10K | DTA 114E | DTB 114E | DTC 114E | DTD 114E |
| 0 | 10K | DTA 114G | - | DTC 114G | DTD 114G |
| 10K | NONE | DTA 114T | DTB 114T | DTC 114T/DTC 314T * | DTD 114T |
| 10K | 4.7K | DTA 114W | - | DTC 114W | - |
| 10K | 47K | DTA 114Y/DTA 214Y | - | DTC 114Y | - |
| 100K | 100K | DTA 115E | - | DTC 115E | - |
| 0 | 100K | DTA 115G | - | DTC 115G | - |
| 100K | NONE | DTA 115T | - | DTC 115T | - |
| 100K | 10K | DTA 115U | - | DTC 115U | - |
| .22K | 4.7K | - | DTB 122J | - | DTD 122J |
| 2.2K | 2.2K | DTA 123E | DTB 123E | DTC 123E | DTD 123E |
| 2.2K | NONE | - | DTB 123T | DTC 323T * | DTD 123T |
| 2.2K | 47K | DTA 123J | - | DTC 123J | - |
| 2.2K | 10K | DTA 123Y | DTB 123Y | DTC 123Y | DTD 123Y |
| 2.7K | 1K | DTA 1D3R | - | DTC 1D3R | - |
| 22K | 22K | DTA 124E | - | DTC 124E | - |
| 0 | 22K | DTA 124G | - | DTC 124G | - |
| 22K | NONE | DTA 124T | - | DTC 124T | - |
| 22K | 47K | DTA 124X | - - | DTC 124X | - |
| 220K | NONE | DTA 125T | - | DTC 125T | - |
| 3.3K | 10K | - | DTB 133H | - | DTD 133H |
| 4.7K | 4.7K | DTA 143E | DTB 143E | DTC 143E | DTD 143E |
| 4.7K | NONE | DTA 143T | DTB 143T | DTC 143T/DTC 343T * | DTD 143T |
| 4.7K | 10K | DTA 143X | - | DTC 143X | - |
| 4.7K | 22K | DTA 143Y | - | DTC 143Y | - |
| 4.7K | 47K | DTA 143Z | - | DTC 143Z | - |
| 47K | 47K | DTA 144E | - | DTC 144E | - |
| 0 | 47K | DTA 144G | - | DTC 144G | - |
| 47K | NONE | DTA 144T | - | DTC 144T | - |
| 47K | 10K | DTA 144V | - | DTC 144V | - |
| 47K | 22K | DTA 144W | - | DTC 144W | - |
| 6.8K | 6.8K | - | - | DTC 363E * | - |
| 6.8K | NONE | - | DTB 163T | DTC 363T * | DTD 163T |

* $I_c$ = 600 mA

NOTE: See "How to Order" for complete part number

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## DIGITAL TRANSISTOR: PNP
### ELECTRICAL CHARACTERISTICS: 100 mA Series

| PART NUMBER | Vin(off) Max (V) | Vce (V) | Ic (mA) | Vin(on) Min (V) | Vce (V) | Ic (mA) | Vo(on) TYP (V) | Max (V) | Ic (mA) | Ib (mA) | Ib Max (mA) | Vin (V) | Ic(OFF) Max (uA) | Vcc (V) | Vin (V) | Vce(SAT) Max (V) | Ic (mA) | Ib (mA) | Cob @ F=1MHz TYP (pF) | Max (pF) | Vcb (V) | Ie (mA) | CUT-OFF FREQ fT (MHz) | Vce (V) | Ic (mA) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DTA113Z | 0.3 | 5 | 0.1 | 3 | 0.3 | 20 | 0.1 | 0.3 | 10 | 0.5 | 7.2 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTA114E | 0.5 | 5 | 0.1 | 3 | 0.3 | 10 | 0.1 | 0.3 | 10 | 0.5 | 0.88 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTA114W | 0.8 | 5 | 0.1 | 3 | 0.3 | 2 | 0.1 | 0.3 | 10 | 0.5 | 0.88 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTA114Y | 0.3 | 5 | 0.1 | 1.4 | 0.3 | 1 | 0.1 | 0.3 | 5 | 0.25 | 0.88 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTA115E | 0.5 | 5 | 0.1 | 3 | 0.3 | 1 | 0.1 | 0.3 | 5 | 0.25 | 0.15 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTA115U | 3.3 | 5 | 0.1 | 1.5 | 0.3 | 1 | 0.1 | 0.3 | 7 | 0.2 | 0.1 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTA123E | 0.5 | 5 | 0.1 | 3 | 0.3 | 20 | 0.1 | 0.3 | 10 | 0.5 | 3.8 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTA123J | 0.5 | 5 | 0.1 | 1.1 | 0.3 | 5 | 0.1 | 0.3 | 5 | 0.25 | 3.6 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTA123Y | 0.3 | 5 | 0.1 | 3 | 0.3 | 20 | 0.1 | 0.3 | 10 | 0.5 | 3.8 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTA124E | 0.5 | 5 | 0.1 | 3 | 0.2 | 5 | 0.1 | 0.3 | 10 | 0.5 | 0.36 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTA124X | 0.4 | 5 | 0.1 | 2.5 | 0.3 | 2 | 0.1 | 0.3 | 10 | 0.5 | 0.36 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTA143E | 0.5 | 5 | 0.1 | 3 | 0.3 | 20 | 0.1 | 0.3 | 10 | 0.5 | 1.8 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTA143X | 0.3 | 5 | 0.1 | 2.5 | 0.3 | 20 | 0.1 | 0.3 | 10 | 0.5 | 1.8 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTA143Y | 0.3 | 5 | 0.1 | 3 | 0.3 | 10 | 0.1 | 0.3 | 10 | 0.5 | 1.8 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTA143Z | 0.5 | 5 | 0.1 | 1.3 | 0.3 | 5 | 0.1 | 0.3 | 5 | 0.25 | 1.8 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTA144E | 0.5 | 5 | 0.1 | 3 | 0.3 | 2 | 0.1 | 0.3 | 10 | 0.5 | 0.18 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTA144V | 1.0 | 5 | 0.1 | 6 | 0.3 | 2 | 0.1 | 0.3 | 10 | 0.5 | 0.16 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTA144W | 0.8 | 5 | 0.1 | 4 | 0.3 | 2 | 0.1 | 0.3 | 10 | 0.5 | 0.16 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTA214Y | 0.3 | 5 | 0.1 | 1.4 | 0.3 | 1 | 0.1 | 0.3 | 50 | 2.5 | 0.88 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTA1D3R | 1.5 | 5 | 0.1 | 4 | 0.3 | 5 | 0.1 | 0.3 | 10 | 1 | 3.7 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |

| PART NUMBER | Vin(off) Max (V) | Vce (V) | Ic (mA) | Vin(on) Min (V) | Vce (V) | Ic (uA) | Vo(on) TYP (V) | Max (V) | Ic (mA) | Ib (mA) | Ib Max (mA) | Vin (V) | Ic(OFF) Max (uA) | Vcc (V) | Vin (V) | Vce(SAT) Max (V) | Ic (mA) | Ib (mA) | Cob @ F=1MHz TYP (pF) | Max (pF) | Vcb (V) | Ie (mA) | CUT-OFF FREQ fT (MHz) | Vce (V) | Ic (mA) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DTA143T | 0.3 | 5 | 0.1 | 3 | 0.3 | 20 | 0.1 | 0.3 | 10 | 0.5 | 7.2 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTA114T | 0.5 | 5 | 0.1 | 3 | 0.3 | 10 | 0.1 | 0.3 | 10 | 0.5 | 0.88 | 5 | 10 | 30 | 0 | 0.3 | 10 | 1 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTA124T | 0.8 | 5 | 0.1 | 3 | 0.3 | 2 | 0.1 | 0.3 | 5 | 0.25 | 1.8 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.5 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTA144T | 0.3 | 5 | 0.1 | 1.4 | 0.3 | 1 | 0.1 | 0.3 | 5 | 0.25 | 0.88 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.5 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTA115T | 0.5 | 5 | 0.1 | 3 | 0.3 | 1 | 0.1 | 0.3 | 5 | 0.25 | 0.15 | 5 | 10 | 30 | 0 | 0.3 | 1 | 0.1 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTA125T | 0.8 | 5 | 0.1 | 3 | 0.3 | 1 | 0.1 | 0.3 | 5 | 0.25 | 0.33 | 5 | 10 | 30 | 0 | 0.3 | 0.5 | 0.05 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTA113T | 0.5 | 5 | 0.1 | 3 | 0.3 | 20 | 0.1 | 0.3 | 10 | 0.5 | 3.8 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.2 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |

| PART NUMBER | Vin(off) Max (V) | Vce (V) | Ic (mA) | Vin(on) Min (V) | Vce (V) | Ic (uA) | Vo(on) TYP (V) | Max (V) | Ic (mA) | Ib (mA) | Ib Max (mA) | Vin (V) | Ic(OFF) Max (uA) | Vcc (V) | Vin (V) | Vce(SAT) Max (V) | Ic (mA) | Ib (mA) | Cob @ F=1MHz TYP (pF) | Max (pF) | Vcb (V) | Ie (mA) | CUT-OFF FREQ fT (MHz) | Vce (V) | Ic (mA) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DTA114G | 0.3 | 5 | 0.1 | 3 | 0.3 | 20 | 0.1 | 0.3 | 10 | 0.5 | 7.2 | 5 | 10 | 30 | 0 | 0.3 | 10 | 0.5 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTA124G | 0.5 | 5 | 0.1 | 3 | 0.3 | 10 | 0.1 | 0.3 | 10 | 0.5 | 0.88 | 5 | 10 | 30 | 0 | 0.3 | 10 | 0.5 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTA144G | 0.8 | 5 | 0.1 | 3 | 0.3 | 2 | 0.1 | 0.3 | 5 | 0.25 | 1.8 | 5 | 10 | 30 | 0 | 0.3 | 10 | 0.5 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTA115G | 0.3 | 5 | 0.1 | 1.4 | 0.3 | 1 | 0.1 | 0.3 | 5 | 0.25 | 0.88 | 5 | 10 | 30 | 0 | 0.3 | 10 | 0.25 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTB114G | 0.3 | 5 | 0.1 | 3 | 0.3 | 20 | 0.1 | 0.3 | 10 | 0.5 | 7.2 | 5 | 10 | 30 | 0 | 0.3 | 50 | 2.5 | 3 | 6 | 10 | 0 | 200 | 10 | 5 |

### ELECTRICAL CHARACTERISTICS: 500 mA Series

| PART NUMBER | Vin(off) Max (V) | Vce (V) | Ic (mA) | Vin(on) Min (V) | Vce (V) | Ic (uA) | Vo(on) TYP (V) | Max (V) | Ic (mA) | Ib (mA) | Ib Max (mA) | Vin (V) | Ic(OFF) Max (uA) | Vcc (V) | Vin (V) | Vce(SAT) Max (V) | Ic (mA) | Ib (mA) | Cob @ F=1MHz TYP (pF) | Max (pF) | Vcb (V) | Ie (mA) | CUT-OFF FREQ fT (MHz) | Vce (V) | Ic (mA) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DTB113E | 0.5 | 5 | 0.1 | 3 | 0.3 | 20 | 0.1 | 0.3 | 50 | 2.5 | 7.2 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 200 | 10 | 50 |
| DTB113Z | 0.3 | 5 | 0.1 | 3 | 0.3 | 20 | 0.1 | 0.3 | 50 | 2.5 | 7.2 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 200 | 10 | 50 |
| DTB114E | 0.5 | 5 | 0.1 | 3 | 0.3 | 10 | 0.1 | 0.3 | 50 | 2.5 | 0.88 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 200 | 10 | 50 |
| DTB123E | 0.5 | 5 | 0.1 | 3 | 0.3 | 20 | 0.1 | 0.3 | 50 | 2.5 | 3.8 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 200 | 10 | 50 |
| DTB143E | 0.5 | 5 | 0.1 | 3 | 0.3 | 20 | 0.1 | 0.3 | 50 | 2.5 | 1.8 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 200 | 10 | 50 |
| DTB123Y | 0.3 | 5 | 0.1 | 2 | 0.3 | 20 | 0.1 | 0.3 | 50 | 2.5 | 3.6 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 200 | 10 | 50 |
| DTB122J | 0.3 | 5 | 0.1 | 2 | 0.3 | 30 | 0.1 | 0.3 | 50 | 2.5 | 4.5 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 200 | 10 | 50 |
| DTB133H | 0.3 | 5 | 0.1 | 2 | 0.3 | 20 | 0.1 | 0.3 | 50 | 2.5 | 2.4 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 200 | 10 | 50 |

| PART NUMBER | Vin(off) Max (V) | Vce (V) | Ic (mA) | Vin(on) Min (V) | Vce (V) | Ic (uA) | Vo(on) TYP (V) | Max (V) | Ic (mA) | Ib (mA) | Ib Max (mA) | Vin (V) | Ic(OFF) Max (uA) | Vcc (V) | Vin (V) | Vce(SAT) Max (V) | Ic (mA) | Ib (mA) | Cob @ F=1MHz TYP (pF) | Max (pF) | Vcb (V) | Ie (mA) | CUT-OFF FREQ fT (MHz) | Vce (V) | Ic (mA) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DTB123T | 0.3 | 5 | 0.1 | 3 | 0.3 | 20 | 0.1 | 0.3 | 10 | 0.5 | 7.2 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 200 | 10 | 5 |
| DTB143T | 0.5 | 5 | 0.1 | 3 | 0.3 | 10 | 0.1 | 0.3 | 10 | 0.5 | 0.88 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 200 | 10 | 5 |
| DTB163T | 0.8 | 5 | 0.1 | 3 | 0.3 | 2 | 0.1 | 0.3 | 5 | 0.25 | 1.8 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 200 | 10 | 5 |
| DTB114T | 0.3 | 5 | 0.1 | 1.4 | 0.3 | 1 | 0.1 | 0.3 | 5 | 0.25 | 0.88 | 5 | 10 | 50 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 200 | 10 | 5 |

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## DIGITAL TRANSISTOR: PNP
### ELECTRICAL CHARACTERISTICS: 100 mA Series

| PART NUMBER | TYP | R1 (K) | R2 (K) | R2/R1 Min | R2/R1 Typ | R2/R1 Max | Ic Max (mA) | Input Volt Min (V) | Input Volt Max (V) | hFE Min | Vce (V) | Ic (mA) | Icbo Max (uA) | Vcb (V) | Iceo Max (uA) | Vce (V) | PART MARK | DIE TYPE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DTA113Z | PNP | 1.0 | 10.0 | 8 | 10 | 12 | 100 | -10 | 5 | 33 | 5 | 5 | 0.5 | 50 | 0.5 | 50 | E11/111 | A776 |
| DTA114E | PNP | 10.0 | 10.0 | 0.8 | 1 | 1.2 | 100 | -40 | 10 | 30 | 5 | 5 | 0.5 | 50 | 0.5 | 50 | 14 | A766 |
| DTA114W | PNP | 10.0 | 4.7 | 0.37 | 0.47 | 0.57 | 100 | -30 | 10 | 24 | 5 | 10 | 0.5 | 50 | 0.5 | 50 | 74 | A778 |
| DTA114Y | PNP | 10.0 | 47.0 | 3.7 | 4.7 | 5.7 | 100 | -40 | 6 | 68 | 5 | 5 | 0.5 | 50 | 0.5 | 50 | 54 | A762 |
| DTA115E * | PNP | 100.0 | 100.0 | 0.8 | 1 | 1.2 | 100 | -40 | 10 | 82 | 5 | 5 | 0.5 | 50 | 0.5 | 50 | 19 | B861 |
| DTA115U | PNP | 100.0 | 10.0 | 0.06 | 0.1 | 0.12 | 100 | -40 | 10 | 27 | 5 | 5 | 0.5 | 50 | 0.5 | 50 | E79/179 | B865 |
| DTA123E | PNP | 2.2 | 2.2 | 0.8 | 1 | 1.2 | 100 | -12 | 10 | 20 | 5 | 20 | 0.5 | 50 | 0.5 | 50 | 12 | A733 |
| DTA123J | PNP | 2.2 | 47.0 | 17 | 21 | 26 | 100 | -12 | 5 | 80 | 5 | 10 | 0.5 | 50 | 0.5 | 50 | E32/132 | A774 |
| DTA123Y | PNP | 2.2 | 10.0 | 3.6 | 4.5 | 5.5 | 100 | -12 | 5 | 33 | 5 | 10 | 0.5 | 50 | 0.5 | 50 | 52 | A777 |
| DTA124E | PNP | 22.0 | 22.0 | 0.8 | 1 | 1.2 | 100 | -40 | 10 | 56 | 5 | 5 | 0.5 | 50 | 0.5 | 50 | 15 | A761 |
| DTA124X | PNP | 22.0 | 47.0 | 1.7 | 2.1 | 2.6 | 100 | -40 | 10 | 68 | 5 | 5 | 0.5 | 50 | 0.5 | 50 | 35 | A770 |
| DTA143E | PNP | 4.7 | 4.7 | 0.8 | 1 | 1.2 | 100 | -30 | 10 | 20 | 5 | 10 | 0.5 | 50 | 0.5 | 50 | 13 | A768 |
| DTA143X | PNP | 4.7 | 10.0 | 1.7 | 2.1 | 2.6 | 100 | -20 | 7 | 30 | 5 | 10 | 0.5 | 50 | 0.5 | 50 | 33 | A769 |
| DTA143Y | PNP | 4.7 | 22.0 | 3.7 | 4.7 | 5.7 | 100 | -30 | 6 | 56 | 5 | 5 | 0.5 | 50 | 0.5 | 50 | 53 | A785 |
| DTA143Z | PNP | 4.7 | 47.0 | 8 | 10 | 12 | 100 | -30 | 5 | 80 | 5 | 10 | 0.5 | 50 | 0.5 | 50 | E13/113 | A775 |
| DTA144E | PNP | 47.0 | 47.0 | 0.8 | 1 | 1.2 | 100 | -40 | 15 | 68 | 5 | 5 | 0.5 | 50 | 0.5 | 50 | 16 | A782 |
| DTA144V | PNP | 47.0 | 10.0 | 0.17 | 0.21 | 0.26 | 100 | | | 33 | 5 | 5 | 0.5 | 50 | 0.5 | 50 | E56/156 | A774 |
| DTA144W | PNP | 47.0 | 22.0 | 0.37 | 0.47 | 0.57 | 100 | -40 | 10 | 56 | 5 | 5 | 0.5 | 50 | 0.5 | 50 | 76 | A767 |
| DTA214Y | PNP | 10 | 47 | 3.7 | 4.7 | 5.7 | 100 | -40 | 6 | 68 | 5 | 5 | 0.5 | 50 | 0.5 | 50 | N14 | A762 |
| DTA1D3R | PNP | 2.7 | 1.0 | 0.33 | 0.37 | 0.41 | 100 | -15 | 15 | 20 | 5 | 30 | 0.5 | 50 | 0.5 | 50 | K3B | A784 |

| PART NUMBER | TYP | R1 (K) | R2 (K) | Vcbo Max (V) | Vceo Max (V) | Vebo Max (V) | Ic Max (mA) | hFE Min | hFE Typ | hFE Max | Vce (V) | Ic (mA) | Icbo Max (uA) | Vcb (V) | Iebo Max (uA) | Veb (V) | PART MARK | DIE TYPE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DTA143T | PNP | 4.7 | NONE | 50 | 50 | 5 | 100 | 100 | 250 | 600 | 5 | 1 | 0.5 | 50 | 0.5 | 4 | 93 | A764 |
| DTA114T | PNP | 10.0 | NONE | 50 | 50 | 5 | 100 | 100 | 250 | 600 | 5 | 1 | 0.5 | 50 | 0.5 | 4 | 94 | A765 |
| DTA124T | PNP | 22.0 | NONE | 50 | 50 | 5 | 100 | 100 | 250 | 600 | 5 | 1 | 0.5 | 50 | 0.5 | 4 | 95 | A771 |
| DTA144T | PNP | 47.0 | NONE | 50 | 50 | 5 | 100 | 100 | 250 | 600 | 5 | 1 | 0.5 | 50 | 0.5 | 4 | 96 | A772 |
| DTA115T | PNP | 100.0 | NONE | 50 | 50 | 5 | 100 | 100 | 250 | 600 | 5 | 1 | 0.5 | 50 | 0.5 | 4 | 99 | B864 |
| DTA125T | PNP | 200.0 | NONE | 50 | 50 | 5 | 100 | 100 | 250 | 600 | 5 | 1 | 0.5 | 50 | 0.5 | 4 | 9A | B863 |
| DTA113T | PNP | 1.0 | NONE | 50 | 50 | 5 | 100 | 100 | 250 | 600 | 5 | 1 | 0.5 | 50 | 0.5 | 4 | 91 | A786 |

| PART NUMBER | TYP | R1 (K) | R2 (K) | Vcbo Max (V) | Vceo Max (V) | Vebo Max (V) | Ic Max (mA) | hFE Min | hFE Typ | hFE Max | Vce (V) | Ic (mA) | Icbo Max (uA) | Vcb (V) | Iebo Max (uA) | Veb (V) | PART MARK | DIE TYPE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DTA114G | PNP | 0 | 10.0 | 50 | 50 | 5 | 100 | 30 | - | - | 5 | 5 | 0.5 | 50 | 580 | 4 | K14 | A780 |
| DTA124G | PNP | 0 | 22.0 | 50 | 50 | 5 | 100 | 56 | - | - | 5 | 5 | 0.5 | 50 | 260 | 4 | K15 | A781 |
| DTA144G | PNP | 0 | 47.0 | 50 | 50 | 5 | 100 | 68 | - | - | 5 | 5 | 0.5 | 50 | 130 | 4 | K16 | A782 |
| DTA115G | PNP | 0 | 100.0 | 50 | 50 | 5 | 100 | 82 | - | - | 5 | 5 | 0.5 | 50 | 58 | 4 | K19 | B862 |
| DTB114G | PNP | 0 | 10.0 | 50 | 50 | 5 | 500 | 56 | - | - | 5 | 100 | 0.5 | 50 | 0.5 | 4 | L14 | B726 |

### ELECTRICAL CHARACTERISTICS: 500 mA Series

| PART NUMBER | TYP | R1 (K) | R2 (K) | R2/R1 Min | R2/R1 Typ | R2/R1 Max | Ic Max (mA) | Input Volt Min (V) | Input Volt Max (V) | hFE Min | Vce (V) | Ic (mA) | Icbo Max (uA) | Vcb (V) | Iceo Max (uA) | Vce (V) | PART MARK | DIE TYPE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DTB113E | PNP | 1.0 | 1.0 | 0.8 | 1 | 1.2 | 500 | -10 | 10 | 33 | 5 | 50 | 0.5 | 50 | 0.5 | 50 | F11 | B717 |
| DTB113Z | PNP | 1.0 | 10.0 | 8 | 10 | 12 | 500 | -10 | 5 | 56 | 5 | 50 | 0.5 | 50 | 0.5 | 50 | G11 | B718 |
| DTB114E | PNP | 10.0 | 10.0 | 0.8 | 1 | 1.2 | 500 | -40 | 10 | 56 | 5 | 50 | 0.5 | 50 | 0.5 | 50 | F14 | B714 |
| DTB123E | PNP | 2.2 | 2.2 | 0.8 | 1 | 1.2 | 500 | -12 | 10 | 39 | 5 | 50 | 0.5 | 50 | 0.5 | 50 | F12 | B712 |
| DTB143E | PNP | 4.7 | 4.7 | 0.8 | 1 | 1.2 | 500 | -30 | 10 | 47 | 5 | 50 | 0.5 | 50 | 0.5 | 50 | F13 | B713 |
| DTB123Y | PNP | 2.2 | 10.0 | 3.6 | 4.5 | 5.5 | 500 | -12 | 5 | 56 | 5 | 50 | 0.5 | 50 | 0.5 | 50 | F52 | B715 |
| DTB122J | PNP | 0.22 | 4.7 | 17.1 | 21.3 | 25.6 | 500 | -5 | 5 | 47 | 5 | 50 | 0.5 | 50 | 0.5 | 50 | G3C | B725 |
| DTB133H | PNP | 3.3 | 10.0 | 2.4 | 3 | 3.7 | 500 | -20 | 6 | 56 | 5 | 50 | 0.5 | 50 | 0.5 | 50 | G98 | B719 |

| PART NUMBER | TYP | R1 (K) | R2 (K) | Vcbo Max (V) | Vceo Max (V) | Vebo Max (V) | Ic Max (mA) | hFE Min | hFE Typ | hFE Max | Vce (V) | Ic (mA) | Icbo Max (uA) | Vcb (V) | Iebo Max (uA) | Veb (V) | PART MARK | DIE TYPE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DTB123T | PNP | 2.2 | NONE | 50 | 50 | 5 | 500 | 100 | 250 | 600 | 5 | 50 | 0.5 | 50 | 0.5 | 4 | E92 | B723 |
| DTB143T | PNP | 4.7 | NONE | 50 | 50 | 5 | 500 | 100 | 250 | 600 | 5 | 50 | 0.5 | 50 | 0.5 | 4 | F03 | B720 |
| DTB163T | PNP | 6.8 | NONE | 50 | 50 | 5 | 500 | 100 | 250 | 600 | 5 | 50 | 0.5 | 50 | 0.5 | 4 | E97 | B721 |
| DTB114T | PNP | 10.0 | NONE | 50 | 50 | 5 | 500 | 100 | 250 | 600 | 5 | 50 | 0.5 | 50 | 0.5 | 4 | E94 | B722 |

## DIGITAL TRANSISTOR: NPN
### ELECTRICAL CHARACTERISTICS: 100 mA Series

| PART NUMBER | Vin(off) Max (V) | Vce (V) | Ic (mA) | Vin(on) Min (V) | Vce (V) | Ic (mA) | Vo(on) TYP (V) | Max (V) | Ic (mA) | Ib (mA) | Ib Max (mA) | Vin (V) | Ic(OFF) Max (uA) | Vcc (V) | Vin (V) | Vce(SAT) Max (V) | Ic (mA) | Ib (mA) | Cob @ F=1MHz TYP (pF) | Max (pF) | Vcb (V) | Ie (mA) | CUT-OFF FREQ fT (MHz) | Vce (V) | Ic (mA) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DTC113Z | 0.3 | 5 | 0.1 | 3 | 0.3 | 20 | 0.1 | 0.3 | 10 | 0.5 | 7.2 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTC114E | 0.5 | 5 | 0.1 | 3 | 0.3 | 10 | 0.1 | 0.3 | 10 | 0.5 | 0.88 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTC114W | 0.8 | 5 | 0.1 | 3 | 0.3 | 2 | 0.1 | 0.3 | 10 | 0.5 | 0.88 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTC114Y | 0.3 | 5 | 0.1 | 1.4 | 0.3 | 1 | 0.1 | 0.3 | 5 | 0.25 | 0.88 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTC115E | 0.5 | 5 | 0.1 | 3 | 0.3 | 1 | 0.1 | 0.3 | 5 | 0.25 | 0.15 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTC115U | 3.3 | 5 | 0.1 | 1.5 | 0.3 | 1 | 0.1 | 0.3 | 7 | 0.2 | 0.1 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTC123E | 0.5 | 5 | 0.1 | 3 | 0.3 | 20 | 0.1 | 0.3 | 10 | 0.5 | 3.8 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTC123J | 0.5 | 5 | 0.1 | 1.1 | 0.3 | 5 | 0.1 | 0.3 | 5 | 0.25 | 3.6 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTC123Y | 0.3 | 5 | 0.1 | 3 | 0.3 | 20 | 0.1 | 0.3 | 10 | 0.5 | 3.8 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTC124E | 0.5 | 5 | 0.1 | 3 | 0.2 | 5 | 0.1 | 0.3 | 10 | 0.5 | 0.36 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTC124X | 0.4 | 5 | 0.1 | 2.5 | 0.3 | 2 | 0.1 | 0.3 | 10 | 0.5 | 0.36 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTC143E | 0.5 | 5 | 0.1 | 3 | 0.3 | 20 | 0.1 | 0.3 | 10 | 0.5 | 1.8 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTC143X | 0.3 | 5 | 0.1 | 2.5 | 0.3 | 20 | 0.1 | 0.3 | 10 | 0.5 | 1.8 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTC143Y | 0.3 | 5 | 0.1 | 3 | 0.3 | 10 | 0.1 | 0.3 | 10 | 0.5 | 1.8 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTC143Z | 0.5 | 5 | 0.1 | 1.3 | 0.3 | 5 | 0.1 | 0.3 | 5 | 0.25 | 1.8 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTC144E | 0.5 | 5 | 0.1 | 3 | 0.3 | 2 | 0.1 | 0.3 | 10 | 0.5 | 0.18 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTC144V | 1.0 | 5 | 0.1 | 6 | 0.3 | 2 | 0.1 | 0.3 | 10 | 0.5 | 0.16 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTC144W | 0.8 | 5 | 0.1 | 4 | 0.3 | 2 | 0.1 | 0.3 | 10 | 0.5 | 0.16 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTC214Y | 0.3 | 5 | 0.1 | 1.4 | 0.3 | 1 | 0.1 | 0.3 | 50 | 2.5 | 0.88 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTC1D3R | 1.5 | 5 | 0.1 | 4 | 0.3 | 5 | 0.1 | 0.3 | 10 | 1 | 3.7 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |

| PART NUMBER | Vin(off) Max (V) | Vce (V) | Ic (mA) | Vin(on) Min (V) | Vce (V) | Ic (uA) | Vo(on) TYP (V) | Max (V) | Ic (mA) | Ib (mA) | Ib Max (mA) | Vin (V) | Ic(OFF) Max (uA) | Vcc (V) | Vin (V) | Vce(SAT) Max (V) | Ic (mA) | Ib (mA) | Cob @ F=1MHz TYP (pF) | Max (pF) | Vcb (V) | Ie (mA) | CUT-OFF FREQ fT (MHz) | Vce (V) | Ic (mA) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DTC143T | 0.3 | 5 | 0.1 | 3 | 0.3 | 20 | 0.1 | 0.3 | 10 | 0.5 | 7.2 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTC114T | 0.5 | 5 | 0.1 | 3 | 0.3 | 10 | 0.1 | 0.3 | 10 | 0.5 | 0.88 | 5 | 10 | 30 | 0 | 0.3 | 10 | 1 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTC124T | 0.8 | 5 | 0.1 | 3 | 0.3 | 2 | 0.1 | 0.3 | 5 | 0.25 | 1.8 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.5 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTC144T | 0.3 | 5 | 0.1 | 1.4 | 0.3 | 1 | 0.1 | 0.3 | 5 | 0.25 | 0.88 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.5 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTC115T | 0.5 | 5 | 0.1 | 3 | 0.3 | 1 | 0.1 | 0.3 | 5 | 0.25 | 0.15 | 5 | 10 | 30 | 0 | 0.3 | 1 | 0.1 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTC125T | 0.8 | 5 | 0.1 | 3 | 0.3 | 1 | 0.1 | 0.3 | 5 | 0.25 | 0.33 | 5 | 10 | 30 | 0 | 0.3 | 0.5 | 0.05 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTC113T | 0.5 | 5 | 0.1 | 3 | 0.3 | 20 | 0.1 | 0.3 | 10 | 0.5 | 3.8 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.2 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |

| PART NUMBER | Vin(off) Max (V) | Vce (V) | Ic (mA) | Vin(on) Min (V) | Vce (V) | Ic (uA) | Vo(on) TYP (V) | Max (V) | Ic (mA) | Ib (mA) | Ib Max (mA) | Vin (V) | Ic(OFF) Max (uA) | Vcc (V) | Vin (V) | Vce(SAT) Max (V) | Ic (mA) | Ib (mA) | Cob @ F=1MHz TYP (pF) | Max (pF) | Vcb (V) | Ie (mA) | CUT-OFF FREQ fT (MHz) | Vce (V) | Ic (mA) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DTC114G | 0.3 | 5 | 0.1 | 3 | 0.3 | 20 | 0.1 | 0.3 | 10 | 0.5 | 7.2 | 5 | 10 | 30 | 0 | 0.3 | 10 | 0.5 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTC124G | 0.5 | 5 | 0.1 | 3 | 0.3 | 10 | 0.1 | 0.3 | 10 | 0.5 | 0.88 | 5 | 10 | 30 | 0 | 0.3 | 10 | 0.5 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTC144G | 0.8 | 5 | 0.1 | 3 | 0.3 | 2 | 0.1 | 0.3 | 5 | 0.25 | 1.8 | 5 | 10 | 30 | 0 | 0.3 | 10 | 0.5 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTC115G | 0.3 | 5 | 0.1 | 1.4 | 0.3 | 1 | 0.1 | 0.3 | 5 | 0.25 | 0.88 | 5 | 10 | 30 | 0 | 0.3 | 10 | 0.25 | 3 | 6 | 10 | 0 | 250 | 10 | 5 |
| DTD114G | 0.3 | 5 | 0.1 | 3 | 0.3 | 20 | 0.1 | 0.3 | 10 | 0.5 | 7.2 | 5 | 10 | 30 | 0 | 0.3 | 50 | 2.5 | 3 | 6 | 10 | 0 | 200 | 10 | 5 |

### ELECTRICAL CHARACTERISTICS: 500 mA Series

| PART NUMBER | Vin(off) Max (V) | Vce (V) | Ic (mA) | Vin(on) Min (V) | Vce (V) | Ic (uA) | Vo(on) TYP (V) | Max (V) | Ic (mA) | Ib (mA) | Ib Max (mA) | Vin (V) | Ic(OFF) Max (uA) | Vcc (V) | Vin (V) | Vce(SAT) Max (V) | Ic (mA) | Ib (mA) | Cob @ F=1MHz TYP (pF) | Max (pF) | Vcb (V) | Ie (mA) | CUT-OFF FREQ fT (MHz) | Vce (V) | Ic (mA) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DTD113E | 0.5 | 5 | 0.1 | 3 | 0.3 | 20 | 0.1 | 0.3 | 50 | 2.5 | 7.2 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 200 | 10 | 50 |
| DTD113Z | 0.3 | 5 | 0.1 | 3 | 0.3 | 20 | 0.1 | 0.3 | 50 | 2.5 | 7.2 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 200 | 10 | 50 |
| DTD114E | 0.5 | 5 | 0.1 | 3 | 0.3 | 10 | 0.1 | 0.3 | 50 | 2.5 | 0.88 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 200 | 10 | 50 |
| DTD123E | 0.5 | 5 | 0.1 | 3 | 0.3 | 20 | 0.1 | 0.3 | 50 | 2.5 | 3.8 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 200 | 10 | 50 |
| DTD143E | 0.5 | 5 | 0.1 | 3 | 0.3 | 20 | 0.1 | 0.3 | 50 | 2.5 | 1.8 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 200 | 10 | 50 |
| DTD123Y | 0.3 | 5 | 0.1 | 2 | 0.3 | 20 | 0.1 | 0.3 | 50 | 2.5 | 3.6 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 200 | 10 | 50 |
| DTD122J | 0.3 | 5 | 0.1 | 2 | 0.3 | 30 | 0.1 | 0.3 | 50 | 2.5 | 4.5 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 200 | 10 | 50 |
| DTD133H | 0.3 | 5 | 0.1 | 2 | 0.3 | 20 | 0.1 | 0.3 | 50 | 2.5 | 2.4 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 200 | 10 | 50 |

| PART NUMBER | Vin(off) Max (V) | Vce (V) | Ic (mA) | Vin(on) Min (V) | Vce (V) | Ic (uA) | Vo(on) TYP (V) | Max (V) | Ic (mA) | Ib (mA) | Ib Max (mA) | Vin (V) | Ic(OFF) Max (uA) | Vcc (V) | Vin (V) | Vce(SAT) Max (V) | Ic (mA) | Ib (mA) | Cob @ F=1MHz TYP (pF) | Max (pF) | Vcb (V) | Ie (mA) | CUT-OFF FREQ fT (MHz) | Vce (V) | Ic (mA) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DTD123T | 0.3 | 5 | 0.1 | 3 | 0.3 | 20 | 0.1 | 0.3 | 10 | 0.5 | 7.2 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 200 | 10 | 5 |
| DTD143T | 0.5 | 5 | 0.1 | 3 | 0.3 | 10 | 0.1 | 0.3 | 10 | 0.5 | 0.88 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 200 | 10 | 5 |
| DTD163T | 0.8 | 5 | 0.1 | 3 | 0.3 | 2 | 0.1 | 0.3 | 5 | 0.25 | 1.8 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 200 | 10 | 5 |
| DTD114T | 0.3 | 5 | 0.1 | 1.4 | 0.3 | 1 | 0.1 | 0.3 | 5 | 0.25 | 0.88 | 5 | 10 | 30 | 0 | 0.3 | 5 | 0.25 | 3 | 6 | 10 | 0 | 200 | 10 | 5 |

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## DIGITAL TRANSISTOR: NPN
## ELECTRICAL CHARACTERISTICS: 100 mA Series

| PART NUMBER | TYP | RESISTOR VALUE R1 (K) | R2 (K) | R2/R1 Min | Typ | Max | Ic Max (mA) | INPUT VOLT Min (V) | Max (V) | hFE Min | Vce (V) | Ic (mA) | Icbo Max (uA) | Vcb (V) | Iceo Max (uA) | Vce (V) | PART MARK | DIE TYPE | EQUIVALENT CIRCUIT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DTC113Z | NPN | 1.0 | 10.0 | 8 | 10 | 12 | 100 | -10 | 5 | 33 | 5 | 5 | 0.5 | 50 | 0.5 | 50 | E12/121 | C776 | |
| DTC114E | NPN | 10.0 | 10.0 | 0.8 | 1 | 1.2 | 100 | -40 | 10 | 30 | 5 | 5 | 0.5 | 50 | 0.5 | 50 | 24 | C768 | |
| DTC114W | NPN | 10.0 | 4.7 | 0.37 | 0.47 | 0.57 | 100 | -30 | 10 | 24 | 5 | 10 | 0.5 | 50 | 0.5 | 50 | 84 | C778 | |
| DTC114Y | NPN | 10.0 | 47.0 | 3.7 | 4.7 | 5.7 | 100 | -40 | 6 | 68 | 5 | 5 | 0.5 | 50 | 0.5 | 50 | 64 | C762 | |
| DTC115E * | NPN | 100.0 | 100.0 | 0.8 | 1 | 1.2 | 100 | -40 | 10 | 82 | 5 | 5 | 0.5 | 50 | 0.5 | 50 | 29 | D861 | |
| DTC115U | NPN | 100.0 | 10.0 | 0.08 | 0.1 | 0.12 | 100 | -40 | 10 | 27 | 5 | 5 | 0.5 | 50 | 0.5 | 50 | E89/189 | D865 | |
| DTC123E | NPN | 2.2 | 2.2 | 0.8 | 1 | 1.2 | 100 | -12 | 10 | 20 | 5 | 20 | 0.5 | 50 | 0.5 | 50 | 22 | C733 | |
| DTC123J | NPN | 2.2 | 47.0 | 17 | 21 | 26 | 100 | -12 | 5 | 80 | 5 | 10 | 0.5 | 50 | 0.5 | 50 | E42/142 | C774 | |
| DTC123Y | NPN | 2.2 | 10.0 | 3.6 | 4.5 | 5.5 | 100 | -12 | 5 | 33 | 5 | 10 | 0.5 | 50 | 0.5 | 50 | 62 | C777 | |
| DTC124E | NPN | 22.0 | 22.0 | 0.8 | 1 | 1.2 | 100 | -40 | 10 | 56 | 5 | 5 | 0.5 | 50 | 0.5 | 50 | 25 | C781 | |
| DTC124X | NPN | 22.0 | 47.0 | 1.7 | 2.1 | 2.6 | 100 | -40 | 10 | 68 | 5 | 5 | 0.5 | 50 | 0.5 | 50 | 45 | C770 | |
| DTC143E | NPN | 4.7 | 4.7 | 0.8 | 1 | 1.2 | 100 | -30 | 10 | 20 | 5 | 10 | 0.5 | 50 | 0.5 | 50 | 23 | C768 | |
| DTC143X | NPN | 4.7 | 10.0 | 1.7 | 2.1 | 2.6 | 100 | -20 | 7 | 30 | 5 | 10 | 0.5 | 50 | 0.5 | 50 | 43 | C769 | |
| DTC143Y | NPN | 4.7 | 22.0 | 3.7 | 4.7 | 5.7 | 100 | -30 | 6 | 56 | 5 | 5 | 0.5 | 50 | 0.5 | 50 | 63 | C785 | |
| DTC143Z | NPN | 4.7 | 47.0 | 8 | 10 | 12 | 100 | -30 | 5 | 80 | 5 | 10 | 0.5 | 50 | 0.5 | 50 | E23/123 | C775 | |
| DTC144E | NPN | 47.0 | 47.0 | 0.8 | 1 | 1.2 | 100 | -40 | 15 | 68 | 5 | 5 | 0.5 | 50 | 0.5 | 50 | 26 | C782 | |
| DTC144V | NPN | 47.0 | 10.0 | 0.17 | 0.21 | 0.26 | 100 | | | 33 | 5 | 5 | 0.5 | 50 | 0.5 | 50 | E66/166 | C774 | |
| DTC144W | NPN | 47.0 | 22.0 | 0.37 | 0.47 | 0.57 | 100 | -40 | 10 | 56 | 5 | 5 | 0.5 | 50 | 0.5 | 50 | 86 | C757 | |
| DTC214Y | NPN | 10 | 47 | 3.7 | 4.7 | 5.7 | 100 | -40 | 6 | 68 | 5 | 5 | 0.5 | 50 | 0.5 | 50 | N24 | C762 | |
| DTC1D3R | NPN | 2.7 | 1.0 | 0.33 | 0.37 | 0.41 | 100 | -15 | 15 | 20 | 5 | 30 | 0.5 | 50 | 0.5 | 50 | K4B | C784 | |

| PART NUMBER | TYP | RESISTOR VALUE R1 (K) | R2 (K) | Vcbo Max (V) | Vceo Max (V) | Vebo Max (V) | Ic Max (mA) | hFE Min | Typ | Max | Vce (V) | Ic (mA) | Icbo Max (uA) | Vcb (V) | Iebo Max (uA) | Veb (V) | PART MARK | DIE TYPE | EQUIVALENT CIRCUIT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DTC143T | NPN | 4.7 | NONE | 50 | 50 | 5 | 100 | 100 | 250 | 600 | 5 | 1 | 0.5 | 50 | 0.5 | 4 | 3 | C764 | |
| DTC114T | NPN | 10.0 | NONE | 50 | 50 | 5 | 100 | 100 | 250 | 600 | 5 | 1 | 0.5 | 50 | 0.5 | 4 | 4 | C765 | |
| DTC124T | NPN | 22.0 | NONE | 50 | 50 | 5 | 100 | 100 | 250 | 600 | 5 | 1 | 0.5 | 50 | 0.5 | 4 | 5 | C771 | |
| DTC144T | NPN | 47.0 | NONE | 50 | 50 | 5 | 100 | 100 | 250 | 600 | 5 | 1 | 0.5 | 50 | 0.5 | 4 | 6 | C772 | |
| DTC115T | NPN | 100.0 | NONE | 50 | 50 | 5 | 100 | 100 | 250 | 600 | 5 | 1 | 0.5 | 50 | 0.5 | 4 | 9 | D864 | |
| DTC125T | NPN | 200.0 | NONE | 50 | 50 | 5 | 100 | 100 | 250 | 600 | 5 | 1 | 0.5 | 50 | 0.5 | 4 | 0A | D863 | |
| DTC113T | NPN | 1.0 | NONE | 50 | 50 | 5 | 100 | 100 | 250 | 600 | 5 | 1 | 0.5 | 50 | 0.5 | 4 | 1 | C786 | |

| PART NUMBER | TYP | RESISTOR VALUE R1 (K) | R2 (K) | Vcbo Max (V) | Vceo Max (V) | Vebo Max (V) | Ic Max (mA) | hFE Min | Typ | Max | Vce (V) | Ic (mA) | Icbo Max (uA) | Vcb (V) | Iebo Max (uA) | Veb (V) | PART MARK | DIE TYPE | EQUIVALENT CIRCUIT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DTC114G | NPN | 0 | 10.0 | 50 | 50 | 5 | 100 | 30 | - | - | 5 | 5 | 0.5 | 50 | 580 | 4 | K24 | C780 | |
| DTC124G | NPN | 0 | 22.0 | 50 | 50 | 5 | 100 | 56 | - | - | 5 | 5 | 0.5 | 50 | 260 | 4 | K25 | C781 | |
| DTC144G | NPN | 0 | 47.0 | 50 | 50 | 5 | 100 | 68 | - | - | 5 | 5 | 0.5 | 50 | 130 | 4 | K26 | C782 | |
| DTC115G | NPN | 0 | 100.0 | 50 | 50 | 5 | 100 | 82 | - | - | 5 | 5 | 0.5 | 50 | 58 | 4 | K29 | D862 | |
| DTD114G | NPN | 0 | 10.0 | 50 | 50 | 5 | 500 | 56 | - | - | 5 | 100 | 0.5 | 50 | 0.5 | 4 | L24 | D726 | |

## ELECTRICAL CHARACTERISTICS: 500 mA Series

| PART NUMBER | TYP | RESISTOR VALUE R1 (K) | R2 (K) | R2/R1 Min | Typ | Max | Ic Max (mA) | INPUT VOLT Min (V) | Max (V) | hFE Min | Vce (V) | Ic (mA) | Icbo Max (uA) | Vcb (V) | Iceo Max (uA) | Vce (V) | PART MARK | DIE TYPE | EQUIVALENT CIRCUIT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DTD113E | NPN | 1.0 | 1.0 | 0.8 | 1 | 1.2 | 500 | -10 | 10 | 33 | 5 | 50 | 0.5 | 50 | 0.5 | 50 | F21 | D717 | |
| DTD113Z | NPN | 1.0 | 10.0 | 8 | 10 | 12 | 500 | -10 | 5 | 56 | 5 | 50 | 0.5 | 50 | 0.5 | 50 | G21 | D718 | |
| DTD114E | NPN | 10.0 | 10.0 | 0.8 | 1 | 1.2 | 500 | -40 | 10 | 56 | 5 | 50 | 0.5 | 50 | 0.5 | 50 | F24 | D714 | |
| DTD123E | NPN | 2.2 | 2.2 | 0.8 | 1 | 1.2 | 500 | -12 | 10 | 39 | 5 | 50 | 0.5 | 50 | 0.5 | 50 | F22 | D712 | |
| DTD143E | NPN | 4.7 | 4.7 | 0.8 | 1 | 1.2 | 500 | -30 | 10 | 47 | 5 | 50 | 0.5 | 50 | 0.5 | 50 | F23 | D713 | |
| DTD123Y | NPN | 2.2 | 10.0 | 3.6 | 4.5 | 5.5 | 500 | -12 | 5 | 56 | 5 | 50 | 0.5 | 50 | 0.5 | 50 | F62 | D715 | |
| DTD122J | NPN | 0.22 | 4.7 | 17.1 | 21.3 | 25.6 | 500 | -5 | 5 | 47 | 5 | 50 | 0.5 | 50 | 0.5 | 50 | G4C | D725 | |
| DTD133H | NPN | 3.3 | 10.0 | 2.4 | 3 | 3.7 | 500 | -20 | 6 | 56 | 5 | 50 | 0.5 | 50 | 0.5 | 50 | G06 | D719 | |

| PART NUMBER | TYP | RESISTOR VALUE R1 (K) | R2 (K) | Vcbo Max (V) | Vceo Max (V) | Vebo Max (V) | Ic Max (mA) | hFE Min | Typ | Max | Vce (V) | Ic (mA) | Icbo Max (uA) | Vcb (V) | Iebo Max (uA) | Veb (V) | PART MARK | DIE TYPE | EQUIVALENT CIRCUIT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DTD123T | NPN | 2.2 | NONE | 50 | 50 | 5 | 500 | 100 | 250 | 600 | 5 | 50 | 0.5 | 50 | 0.5 | 4 | E02 | D723 | |
| DTD143T | NPN | 4.7 | NONE | 50 | 50 | 5 | 500 | 100 | 250 | 600 | 5 | 50 | 0.5 | 50 | 0.5 | 4 | F13 | D720 | |
| DTD163T | NPN | 6.8 | NONE | 50 | 50 | 5 | 500 | 100 | 250 | 600 | 5 | 50 | 0.5 | 50 | 0.5 | 4 | E07 | D721 | |
| DTD114T | NPN | 10.0 | NONE | 50 | 50 | 5 | 500 | 100 | 250 | 600 | 5 | 50 | 0.5 | 50 | 0.5 | 4 | E04 | D722 | |

- **Digital Transistors**

**HOW TO ORDER:**



DT A 1 24 E C T116
(1) (2) (3) (4) (5) (6) (7)

(1) Rohm Digital Transistor

Series
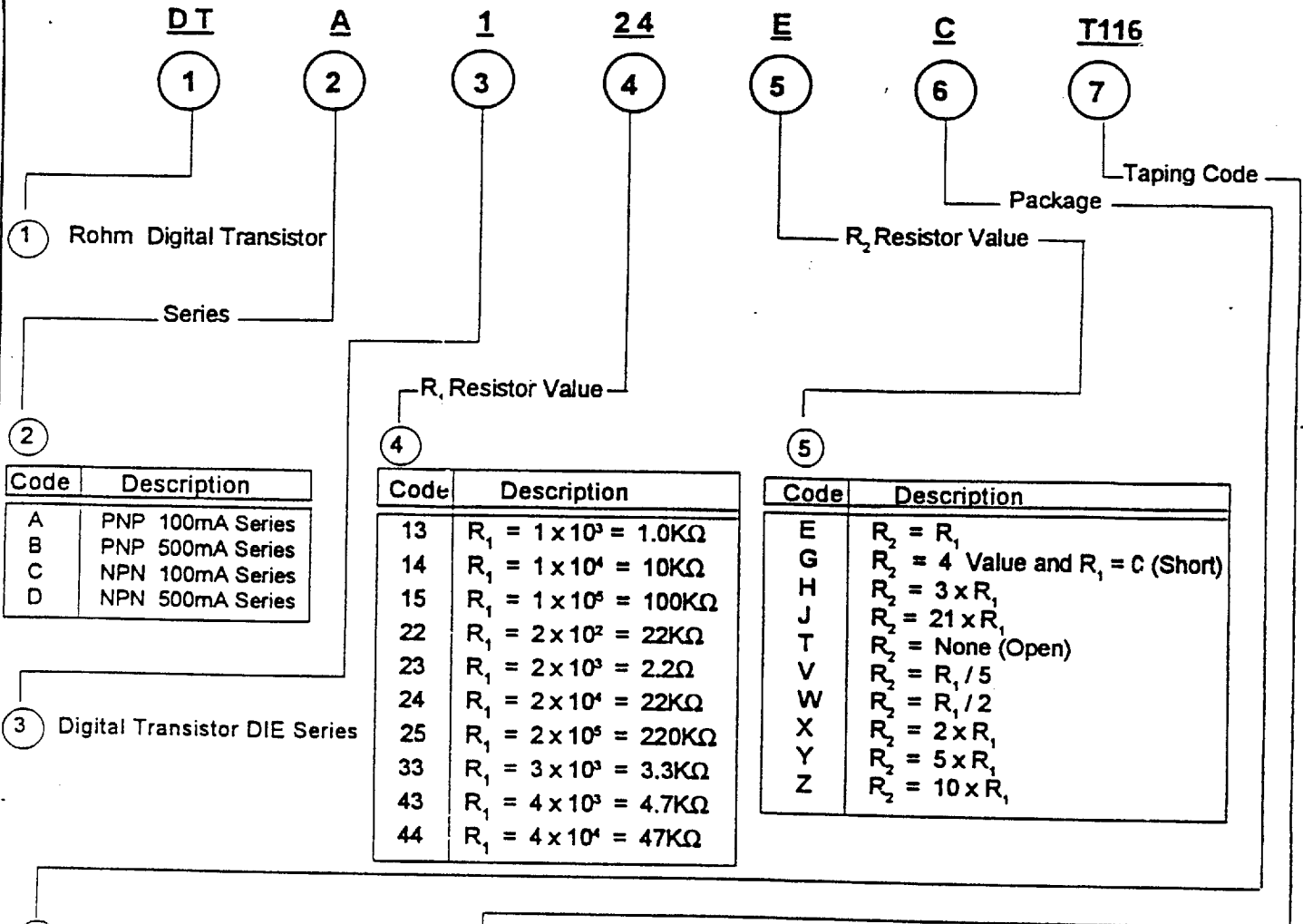
(2) Code / Description

| Code | Description |
|------|-------------|
| A | PNP 100mA Series |
| B | PNP 500mA Series |
| C | NPN 100mA Series |
| D | NPN 500mA Series |

(3) Digital Transistor DIE Series

$R_1$ Resistor Value

(4)

| Code | Description |
|------|-------------|
| 13 | $R_1 = 1 \times 10^3 = 1.0K\Omega$ |
| 14 | $R_1 = 1 \times 10^4 = 10K\Omega$ |
| 15 | $R_1 = 1 \times 10^5 = 100K\Omega$ |
| 22 | $R_1 = 2 \times 10^2 = 22K\Omega$ |
| 23 | $R_1 = 2 \times 10^3 = 2.2\Omega$ |
| 24 | $R_1 = 2 \times 10^4 = 22K\Omega$ |
| 25 | $R_1 = 2 \times 10^5 = 220K\Omega$ |
| 33 | $R_1 = 3 \times 10^3 = 3.3K\Omega$ |
| 43 | $R_1 = 4 \times 10^3 = 4.7K\Omega$ |
| 44 | $R_1 = 4 \times 10^4 = 47K\Omega$ |

$R_2$ Resistor Value

Package

Taping Code

(5)

| Code | Description |
|------|-------------|
| E | $R_2 = R_1$ |
| G | $R_2 = 4$ Value and $R_1 = C$ (Short) |
| H | $R_2 = 3 \times R_1$ |
| J | $R_2 = 21 \times R_1$ |
| T | $R_2 = $ None (Open) |
| V | $R_2 = R_1 / 5$ |
| W | $R_2 = R_1 / 2$ |
| X | $R_2 = 2 \times R_1$ |
| Y | $R_2 = 5 \times R_1$ |
| Z | $R_2 = 10 \times R_1$ |

(6) (7)

| | PKG | DESCRIPTION | TAPING CODE | DESCRIPTION | PKG. QTY. | PACKAGE SIZE |
|---|-----|-------------|-------------|-------------|-----------|--------------|
| **S U R F A C E M O U N T** | K | SMT (SC-59/JAPANESE SOT-23) | \*T146<br>\*T147<br>\*T246 | 1 PIN SIDE ON FEED HOLE SIDE<br>2 PIN SIDE ON FEED HOLD SIDE<br>1 PIN SIDE ON FEED HOLE SIDE | 3,000<br>3,000<br>10,000 | 178mm/7" Reel<br>178mm/7" Reel<br>330mm/13" Reel |
| | C | SST (EUROPEAN SOT-23) | \*T116<br>\*T117<br>\*T216 | 1 PIN SIDE ON FEED HOLE SIDE<br>2 PIN SIDE ON FEED HOLE SIDE<br>1 PIN SIDE ON FEED HOLE SIDE | 3,000<br>3,000<br>10,000 | 178mm/7" Reel<br>178mm/7" Reel<br>330 mm/13" Reel |
| | U | UMT (DTA & DTC ONLY) | \*T106<br>T107 | 1 PIN SIDE ON FEED HOLE SIDE<br>2 PIN SIDE ON FEED HOLE SIDE | 3,000<br>3,000 | 178 mm/7" Reel<br>178 mm/7" Reel |
| | E | EM3 (DTA & DTC ONLY) | \* TL<br>TR | 1 PIN SIDE ON FEED HOLE SIDE<br>2 PIN SIDE ON FEED HOLE SIDE | 3,000<br>3,000 | 178 mm/7" Reel<br>178 mm/7" Reel |
| **L E A D E D D E V I C E S** | S | SPT (Short TO-92) | \* TP<br>NONE | AMMO BOX RADIAL<br>BULK | 5,000<br>2,000 | W-335/H-135/D-40(mm)<br>Polyethylene Bag |
| | V | ATV | \* TV2<br>TV3 | AMMO BOX RADIAL<br>AMMO BOX RADIAL | 2,500<br>2,500 | W-334/H-280/D-41(mm)<br>W-334/H-280/D-41(mm) |
| | L | FTL | \*TL2<br>TL3 | AMMO BOX RADIAL<br>AMMO BOX RADIAL | 2,500<br>2,500 | W-334/H-280/D-41(mm)<br>W-334/H-280/D-41(mm) |
| | F | FTR *Discontinued* | \*NONE<br>C1 | BULK<br>TUBE | 2,000<br>8,000 | Polyethylene Bag<br>L-565/W-4.2/H-11.5(mm) |
| | A | ATR *Discontinued* | \*NONE<br>C2 | BULK<br>TUBE | 2,000<br>8,000 | Polyethylene Bag<br>L-565/W-4.2/H-12.6(mm) |

Note: SOT-23, SC-59 and SPT packages are standard products.

\* Standard Taping Codes

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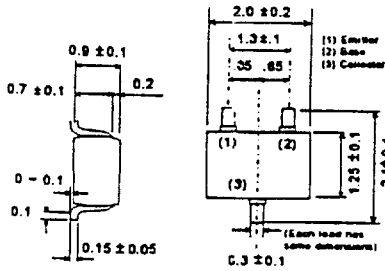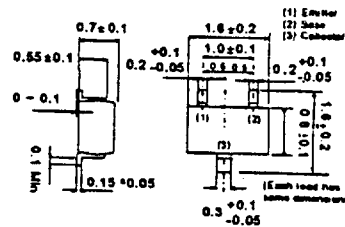
• Surface Mount Packages: Unit (mm)
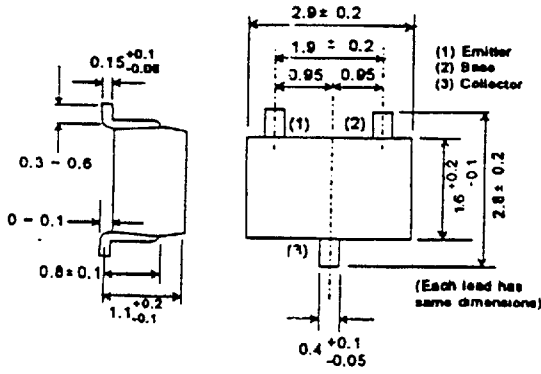


SMT (SC-59/Japanese SOT-23)
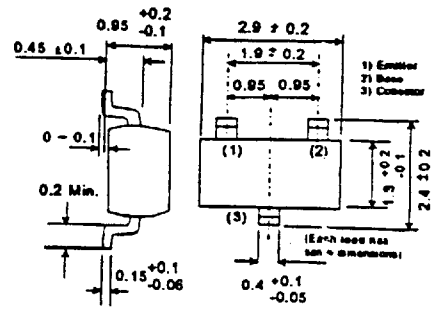


SST (European SOT-23)
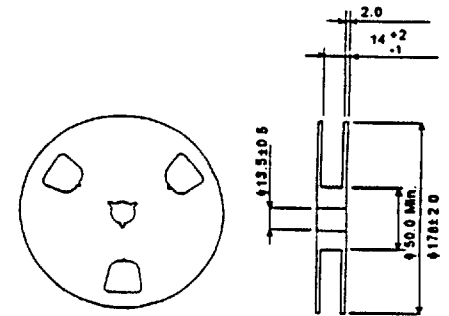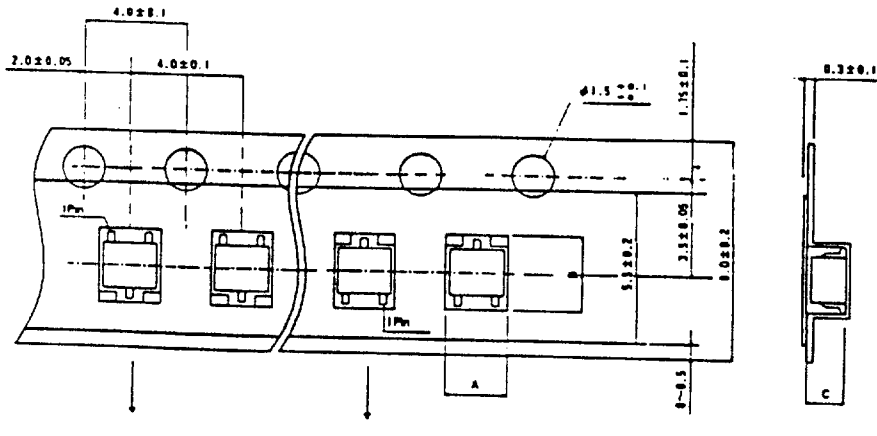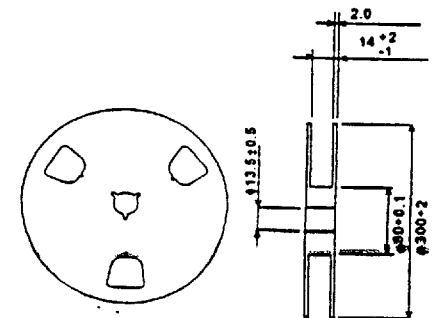


UMT



EM3



178 mm/7" Reel



330 mm/13" Reel

| Package | Code |
|---------|------|
| SMT | T147 |
| SST | T117 |
| UMT | T107 |
| EM3 | TR |

| Package | Code |
|---------|------|
| SMT | T146/T246 |
| SST | T116/T216 |
| UMT | T106/T206 |
| EM3 | TL |

| Package | Size | | |
|---------|------|------|------|
| | A | B | C |
| SMT | 3.1±0.2 | 3.2±0.2 | 1.35±0.1 |
| SST | 3.1±0.2 | 2.8±0.2 | 1.25±0.2 |
| UMT | 2.2±0.1 | 2.4±0.1 | 1.15±0.1 |
| EM3 | 1.8±0.1 | 1.8±0.2 | 0.9±0.2 |

Tape and Reel Dimensions

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- Leaded (thru-hole) Packages
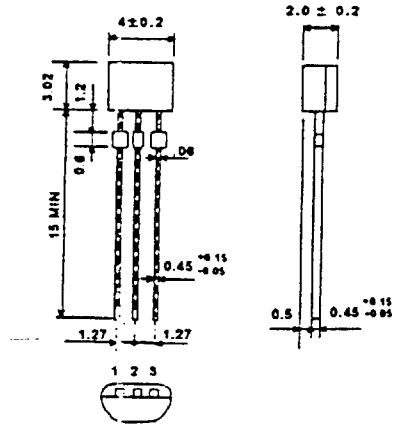


SPT(TO-92S) Package
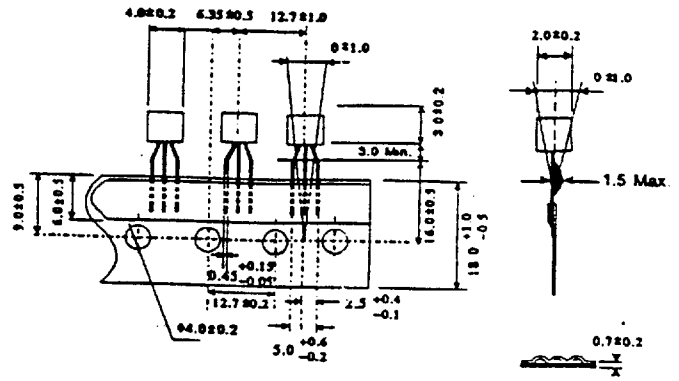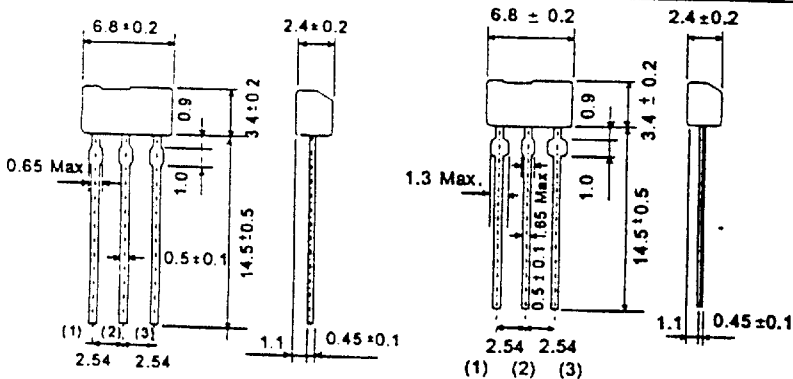
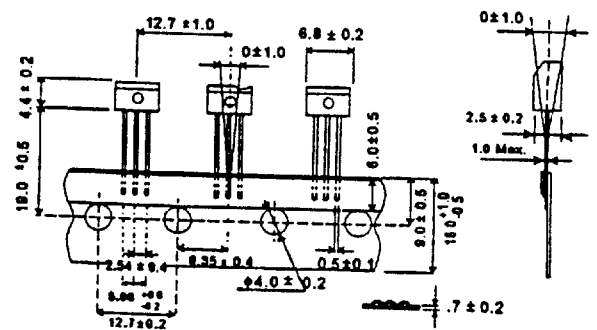Ammo Box Taping Dimensions
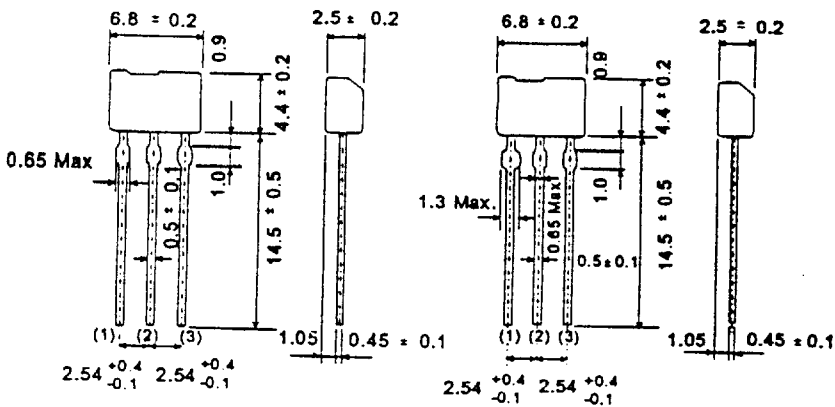


ATV(TV2 Style) Package

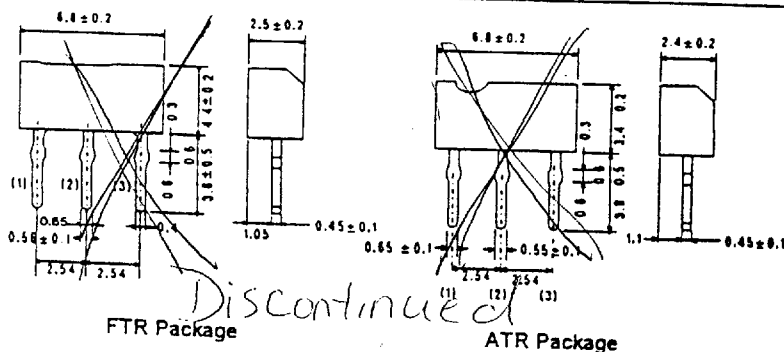ATV(TV3 Style) Package
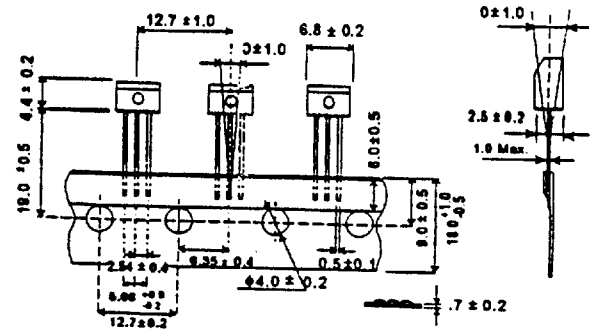
Ammo Box Taping Dimensions



FTL(TL2 Style) Package

FTL(TL3 Style) Package

Ammo Box Taping Dimensions



FTR Package

ATR Package

Discontinued

| PKG. | TAPING CODE | DESCRIPTION | PKG. QTY. |
|------|-------------|-------------|-----------|
| SPT(TO-92S) | TP | AMMO BOX RADIAL (Standard) | 5,000 |
| | NONE | BULK | 2,000 |
| ATV | TV2 | AMMO BOX RADIAL (Standard) | 2,500 |
| | TV3 | AMMO BOX RADIAL | 2,500 |
| FTL | TL2 | AMMO BOX RADIAL (Standard) | 2,500 |
| | TL3 | AMMO BOX RADIAL | 2,500 |
| FTR | NONE | BULK (Standard) | 2,000 |
| | TUBE | | 8,000 |
| ATR | NONE | BULK (Standard) | 2,000 |
| | TUBE | | 8,000 |

Discontinued

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