PNP SURFACE MOUNT TRANSISTOR

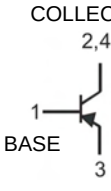
Features

- Epitaxial Planar Die Construction
- High Collector-EmitterVoltage
- Ideally Suited for Automated Assembly Processes
- Ideal for Power Switching or Amplification Applications
- **Lead Free By Design/RoHS Compliant (Note 1)**
- **"Green" Device (Note 2)**

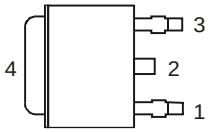
Mechanical Data

- Case: TO252-3L
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish — Matte Tin annealed over Copper Leadframe (Lead Free Plating). Solderable per MIL-STD-202, Method 208
- Marking Information: See Page 4
- Ordering Information: See Page 4
- Weight: 0.34 grams (approximate)

Top View



Device Schematic



Pin Out Configuration

Maximum Ratings @T_A = 25°C unless otherwise specified

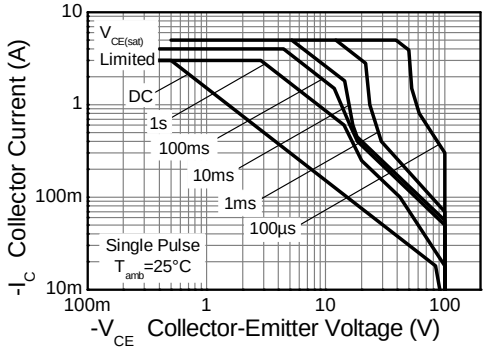
Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	-100	V
Collector-Emitter Voltage	V_{CEO}	-100	V
Emitter-Base Voltage	V_{EBO}	-5	V
Continuous Collector Current	I_C	-3	A
Peak Pulse Collector Current	I_{CM}	-5	A
Continuous Base Current	I_B	-1	A

Thermal Characteristics

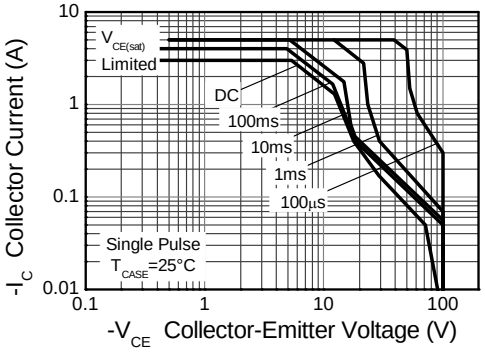
Characteristic	Symbol	Value	Unit
Power Dissipation @T_C = 25°C	P_D	15	W
Thermal Resistance, Junction to Case	$R_{\theta JC}$	8.33	°C/W
Power Dissipation @T_A = 25°C (Note 3)	P_D	1.5	W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	80	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

Notes:
1. No purposefully added lead.
2. Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.
3. Device mounted on FR-4 PCB with minimum recommended pad layout.

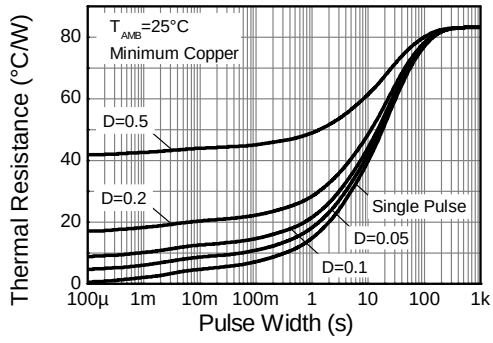
Typical Characteristics



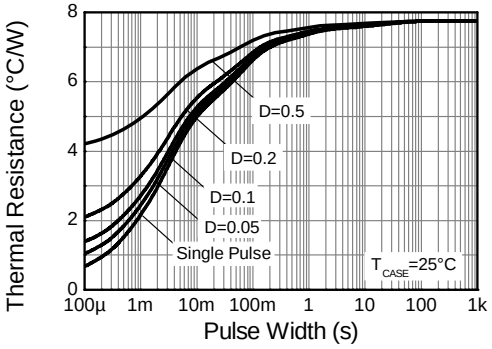
Safe Operating Area



Safe Operating Area



Transient Thermal Impedance



Transient Thermal Impedance

Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Conditions
OFF CHARACTERISTICS (Note 4)						
Collector-Emitter Sustaining Voltage	$V_{(SUS)CEO}$	-100	—	—	V	I_C = -30mA, I_B = 0
Collector Cut-off Current	I_{CEO}	—	—	-50	μA	V_{CB} = -60V, I_B = 0
Collector Cut-off Current	I_{CES}	—	—	-20	μA	V_{CE} = -100V, V_{EB} = 0
Emitter Cut-off Current	I_{EBO}	—	—	-1.0	mA	V_{EB} = -5.0V, I_C = 0
ON CHARACTERISTICS (Note 4)						
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	—	—	-1.2	V	I_C = -3.0A, I_B = -375mA
Base-Emitter Turn-On Voltage	$V_{BE(ON)}$	—	—	-1.8	V	V_{CE} = -4.0V, I_C = -3A
DC Current Gain	h_{FE}	25 10	—	— 50	—	V_{CE} = -4.0V, I_C = -1A V_{CE} = -4.0V, I_C = -3A
SMALL SIGNAL CHARACTERISTICS						
Current Gain-Bandwidth Product	f_T	3.0	—	—	MHz	I_C = -500mA, V_{CE} = -10V, f = 1MHz
Small Signal Current Gain	h_{fe}	20	—	—	—	V_{CE} = -10V, I_C = -0.5A, f = 1KHz

Notes:
1. No purposefully added lead.
2. Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.
3. Device mounted on FR-4 PCB with minimum recommended pad layout.
4. Measured under pulsed conditions. Pulse width = 300μs. Duty cycle ≤2%.

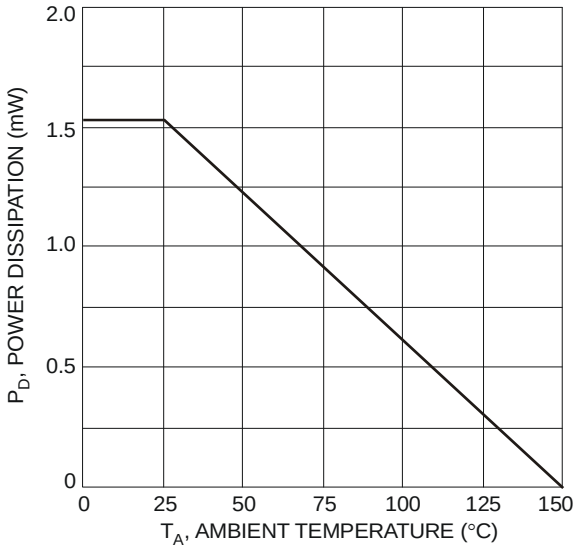


Fig. 1 Power Dissipation vs. Ambient Temperature

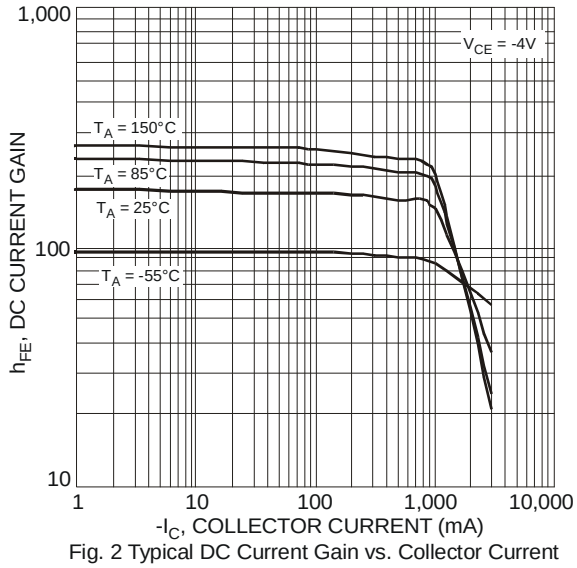


Fig. 2 Typical DC Current Gain vs. Collector Current

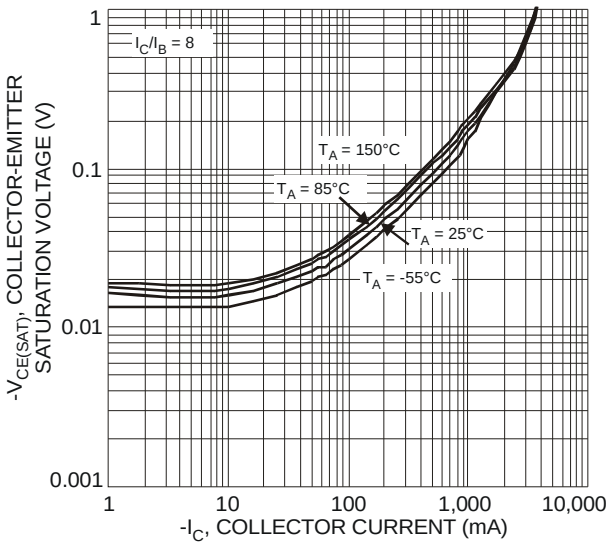


Fig. 3 Typical Collector-Emitter Saturation Voltage vs. Collector Current

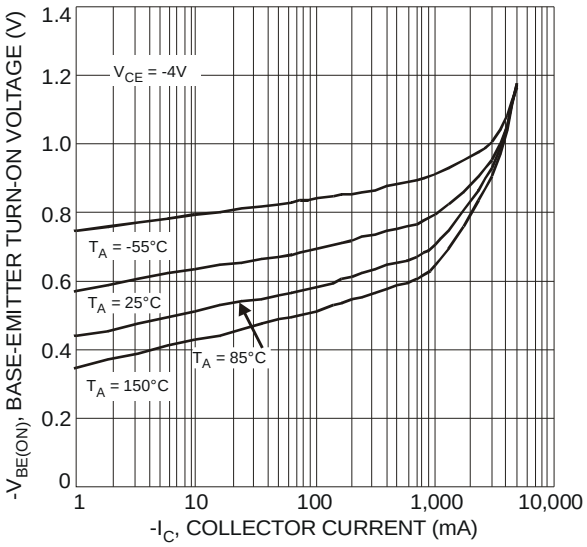


Fig. 4 Typical Base-Emitter Turn-On Voltage vs. Collector Current

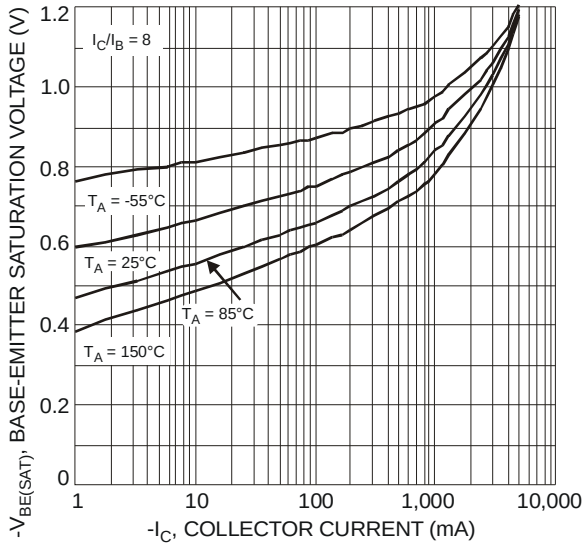


Fig. 5 Typical Base-Emitter Saturation Voltage vs. Collector Current

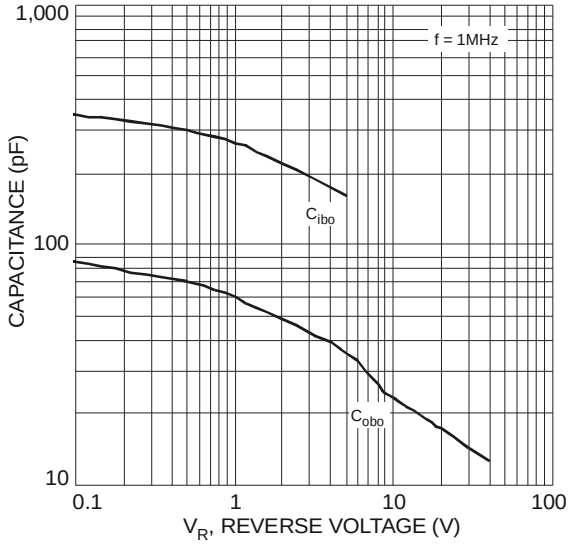


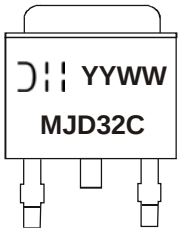
Fig. 6 Typical Capacitance Characteristics

Ordering Information (Note 5)

Part Number	Case	Packaging
MJD32C-13	TO252-3L	2500/Tape & Reel

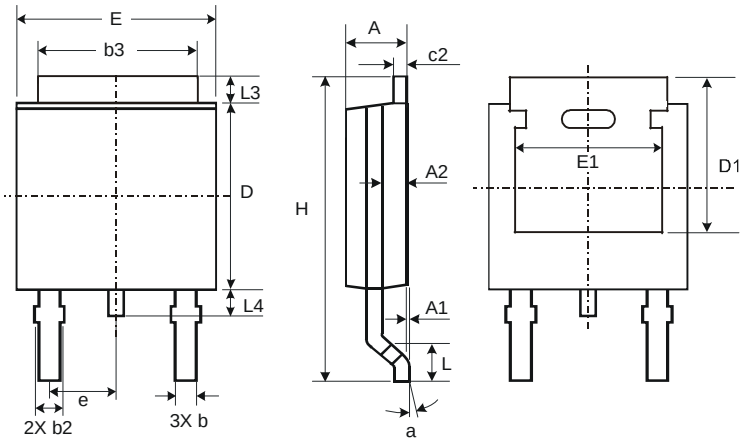
Notes: 5. For packaging details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

Marking Information



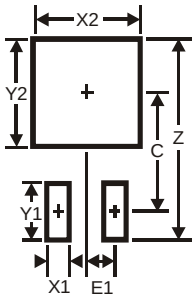
MJD32C = Product Type Marking Code
= Manufacturers' code marking
YYWW = Date Code Marking
YY = Last Digit of Year, (ex: 08 = 2008)
WW = Week Code (01 – 53)

Package Outline Dimensions



TO252-3L			
Dim	Min	Max	Typ
A	2.19	2.39	2.29
A1	0.00	0.13	0.08
A2	0.97	1.17	1.07
b	0.64	0.88	0.783
b2	0.76	1.14	0.95
b3	5.21	5.46	5.33
c2	0.45	0.58	0.531
D	6.00	6.20	6.10
D1	5.21	–	–
e	–	–	2.286
E	6.45	6.70	6.58
E1	4.32	–	–
H	9.40	10.41	9.91
L	1.40	1.78	1.59
L3	0.88	1.27	1.08
L4	0.64	1.02	0.83
a	0°	10°	–
All Dimensions in mm			

Suggested Pad Layout



Dimensions	Value (in mm)
Z	11.6
X1	1.5
X2	7.0
Y1	2.5
Y2	7.0
C	6.9
E1	2.3

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