

MJH6284 (NPN), MJH6287 (PNP)

Preferred Device

Darlington Complementary Silicon Power Transistors

These devices are designed for general-purpose amplifier and low-speed switching motor control applications.

Features

- Similar to the Popular NPN 2N6284 and the PNP 2N6287
- Rugged RBSOA Characteristics
- Monolithic Construction with Built-in Collector-Emitter Diode
- Pb-Free Packages are Available*

MAXIMUM RATINGS

Rating	Symbol	Max	Unit
Collector-Emitter Voltage	V_{CEO}	100	Vdc
Collector-Base Voltage	V_{CB}	100	Vdc
Emitter-Base Voltage	V_{EB}	5.0	Vdc
Collector Current - Continuous - Peak	I_C	20 40	Adc
Base Current	I_B	0.5	Adc
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	160 1.28	W W/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-65 to +150	$^\circ\text{C}$

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	0.78	$^\circ\text{C}/\text{W}$

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

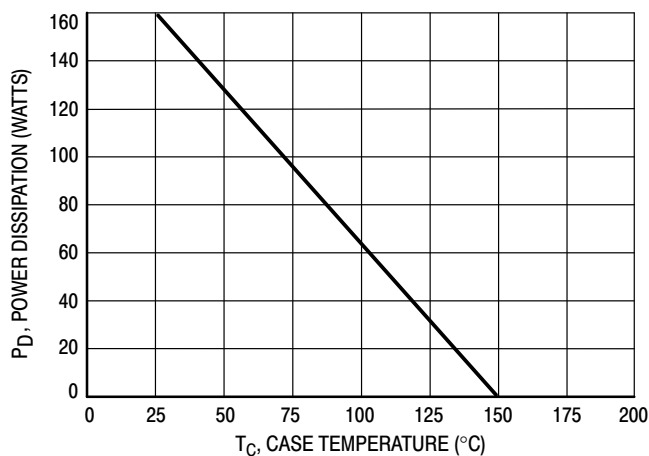


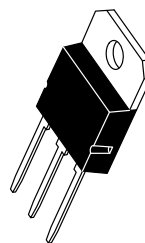
Figure 1. Power Derating

*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.



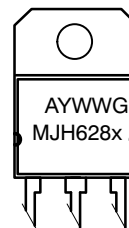
ON Semiconductor®

DARLINGTON 20 AMPERE COMPLEMENTARY SILICON POWER TRANSISTORS 100 VOLTS, 160 WATTS



SOT-93
(TO-218)
CASE 340D

MARKING DIAGRAM



A = Assembly Location
Y = Year
WW = Work Week
G = Pb-Free Package
MJH628x = Device Code
x = 4 or 7

ORDERING INFORMATION

Device	Package	Shipping
MJH6284	SOT-93	30 Units / Rail
MJH6284G	SOT-93 (Pb-Free)	30 Units / Rail
MJH6287	SOT-93	30 Units / Rail
MJH6287G	SOT-93 (Pb-Free)	30 Units / Rail

Preferred devices are recommended choices for future use and best overall value.

MJH6284 (NPN), MJH6287 (PNP)

ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Sustaining Voltage (I _C = 0.1 Adc, I _B = 0)	V _{CEO(sus)}	100	-	Vdc
Collector Cutoff Current (V _{CE} = 50 Vdc, I _B = 0)	I _{CEO}	-	1.0	mAdc
Collector Cutoff Current (V _{CE} = Rated V _{CB} , V _{BE(off)} = 1.5 Vdc) (V _{CE} = Rated V _{CB} , V _{BE(off)} = 1.5 Vdc, T _C = 150°C)	I _{CEX}	-	0.5 5.0	mAdc
Emitter Cutoff Current (V _{BE} = 5.0 Vdc, I _C = 0)	I _{EBO}	-	2.0	mAdc

ON CHARACTERISTICS (Note 1)

DC Current Gain (I _C = 10 Adc, V _{CE} = 3.0 Vdc) (I _C = 20 Adc, V _{CE} = 3.0 Vdc)	h _{FE}	750 100	18,000 -	-
Collector-Emitter Saturation Voltage (I _C = 10 Adc, I _B = 40 mAdc) (I _C = 20 Adc, I _B = 200 mAdc)	V _{CE(sat)}	- -	2.0 3.0	Vdc
Base-Emitter On Voltage (I _C = 10 Adc, V _{CE} = 3.0 Vdc)	V _{BE(on)}	-	2.8	Vdc
Base-Emitter Saturation Voltage (I _C = 20 Adc, I _B = 200 mAdc)	V _{BE(sat)}	-	4.0	Vdc

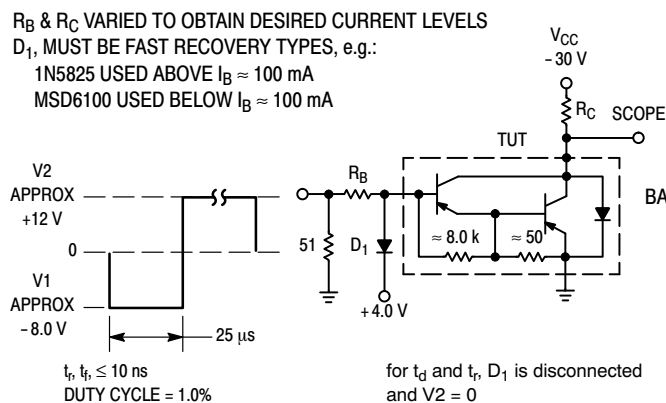
DYNAMIC CHARACTERISTICS

Current-Gain Bandwidth Product (I _C = 10 Adc, V _{CE} = 3.0 Vdc, f = 1.0 MHz)	f _T	4.0	-	MHz
Output Capacitance (V _{CB} = 10 Vdc, I _E = 0, f = 0.1 MHz)	C _{ob}	- -	400 600	pF
				MJH6284 MJH6287
Small-Signal Current Gain (I _C = 10 Adc, V _{CE} = 3.0 Vdc, f = 1.0 kHz)	h _{fe}	300	-	-

SWITCHING CHARACTERISTICS

Resistive Load		Symbol	Typical		Unit
			NPN	PNP	
Delay Time	V _{CC} = 30 Vdc, I _C = 10 Adc I _{B1} = I _{B2} = 100 mA Duty Cycle = 1.0%	t _d	0.1	0.1	μs
Rise Time		t _r	0.3	0.3	
Storage Time		t _s	1.0	1.0	
Fall Time		t _f	3.5	2.0	

1. Pulse test: Pulse Width = 300 μs, Duty Cycle = 2.0%.



For NPN test circuit reverse diode and voltage polarities.

Figure 2. Switching Times Test Circuit

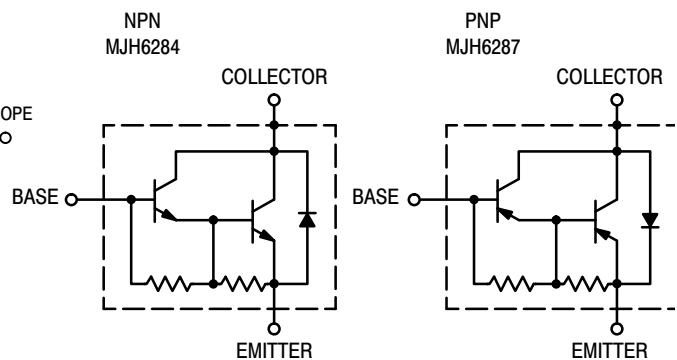
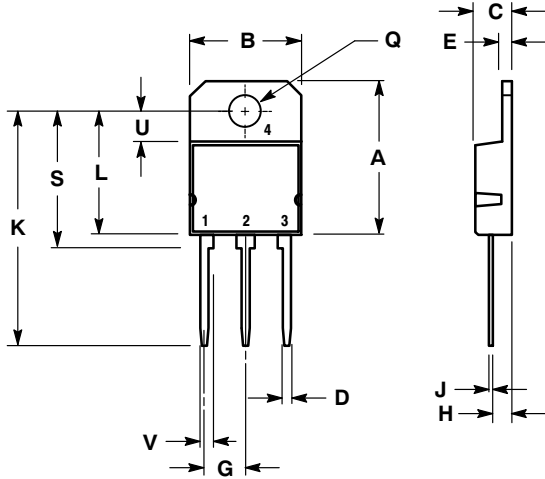


Figure 3. Darlington Schematic

MJH6284 (NPN), MJH6287 (PNP)

PACKAGE DIMENSIONS

SOT-93 (TO-218)
CASE 340D-02
ISSUE E



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETER.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	---	20.35	---	0.801
B	14.70	15.20	0.579	0.598
C	4.70	4.90	0.185	0.193
D	1.10	1.30	0.043	0.051
E	1.17	1.37	0.046	0.054
G	5.40	5.55	0.213	0.219
H	2.00	3.00	0.079	0.118
J	0.50	0.78	0.020	0.031
K	31.00 REF		1.220 REF	
L	---	16.20	---	0.638
Q	4.00	4.10	0.158	0.161
S	17.80	18.20	0.701	0.717
U	4.00 REF		0.157 REF	
V	1.75 REF		0.069	

STYLE 1:
PIN 1. BASE
2. COLLECTOR
3. EMITTER
4. COLLECTOR