Complementary Silicon Power Transistors

MJE270G (NPN), MJE271G (PNP)

Features

- High Safe Operating Area I_{S/B} @ 40 V, 1.0 s = 0.375 A
- Collector–Emitter Sustaining Voltage V_{CEO(sus)} = 100 Vdc (Min)
- High DC Current Gain h_{FE} @ 120 mA, 10 V = 1500 (Min)
- These Devices are Pb-Free and are RoHS Compliant

MAXIMUM RATINGS

Rating	Symbol	Value	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	Ι _C	2.0	Adc
Collector Current – Peak	I _{CM}	4.0	Adc
Base Current	Ι _Β	0.1	Adc
Total Power Dissipation @ T _C = 25°C Derate above 25°C	P _D	15 0.12	W W/°C
Total Power Dissipation @ T _A = 25°C Derate above 25°C	P _D	1.5 0.012	W W/°C
Operating and Storage Junction Temperature Range	T _J , T _{stg}	-65 to +150	°C

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

THERMAL CHARACTERISTICS

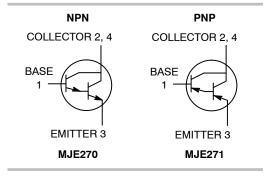
Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	8.33	°C/W
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	83.3	°C/W



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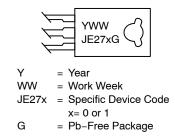
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2.0 AMPERE COMPLEMENTARY POWER DARLINGTON TRANSISTORS 100 VOLTS, 15 WATTS





MARKING DIAGRAM



ORDERING INFORMATION

Device	Package	Shipping
MJE270G	TO–225 (Pb–Free)	500 Units / Box
MJE270TG	TO–225 (Pb–Free)	50 Units / Rail
MJE271G	TO–225 (Pb–Free)	500 Units / Box

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

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Sustaining Voltage (Note 1) $(I_{C} = 10 \text{ mAdc}, I_{B} = 0)$	V _{CEO(sus)}	100	-	Vdc
Collector Cutoff Current ($V_{CE} = 100 \text{ Vdc}, I_B = 0$)	I _{CEO}	-	1.0	mAdc
Collector Cutoff Current ($V_{CB} = 100 \text{ Vdc}, I_E = 0$)	I _{CBO}	-	0.3	mAdc
Emitter Cutoff Current ($V_{BE} = 5.0 \text{ Vdc}, I_C = 0$)	I _{EBO}	-	0.1	mAdc
SECOND BREAKDOWN				
Second Breakdown Collector Current with Base Forward Biased (V_{CE} = 40 Vdc, t = 1.0 s, Non-repetitive)	I _{S/b}	375	-	Adc
ON CHARACTERISTICS (Note 1)				
DC Current Gain (I _C = 20 mAdc, V _{CE} = 3.0 Vdc) (I _C = 120 mAdc, V _{CE} = 10 Vdc)	h _{FE}	500 1500		-
Collector–Emitter Saturation Voltage ($I_C = 20 \text{ mAdc}, I_B = 0.2 \text{ mAdc}$) ($I_C = 120 \text{ mAdc}, I_B = 1.2 \text{ mAdc}$)	V _{CE(sat)}		2.0 3.0	Vdc
Base-Emitter On Voltage (I _C = 120 mAdc, V _{CE} = 10 Vdc)	V _{BE(on)}	-	2.0	Vdc
DYNAMIC CHARACTERISTICS				
Current Gain – Bandwidth Product (Note 2) (I _C = 0.05 Adc, V _{CE} = 5.0 Vdc, f _{test} = 1.0 MHz)	f _T	6.0	_	MHz

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

1. Pulse Test: Pulse Width \leq 300 µs, Duty Cycle \leq 2.0%.

2. $f_T = |h_{fe}| \bullet f_{test}$.

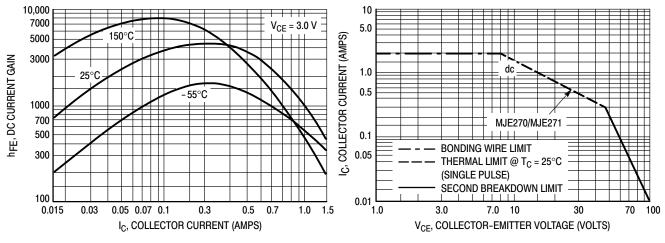


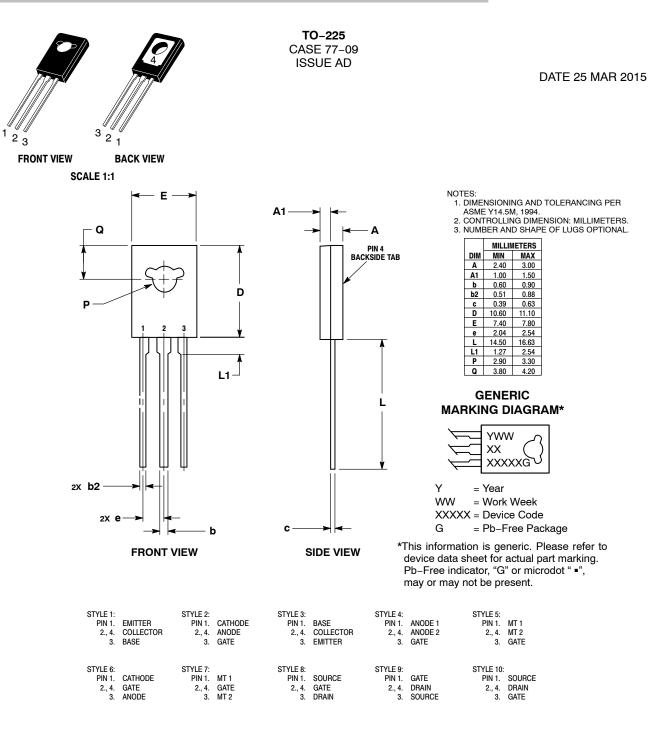


Figure 2. Safe Operating Area

MECHANICAL CASE OUTLINE PACKAGE DIMENSIONS

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