MJE270 (NPN), MJE271 (PNP)

Complementary Silicon Power Transistors

Features

• High Safe Operating Area

 $I_{S/B}$ @ 40 V, 1.0 s = 0.375 A

• Collector-Emitter Sustaining Voltage

 $V_{CEO(sus)} = 100 \text{ Vdc (Min)}$

• High DC Current Gain

 h_{FE} @ 120 mA, 10 V = 1500 (Min)

• Pb-Free Packages are Available*

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 – Peak	I _C	2.0 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

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

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.



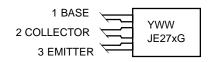
ON Semiconductor®

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2.0 AMPERE COMPLEMENTARY POWER DARLINGTON TRANSISTORS 100 VOLTS, 15 WATTS



MARKING DIAGRAM



Y = Year

WW = Work Week

JE27x = Specific Device Code

x=0 or 1

G = Pb-Free Package

ORDERING INFORMATION

Device	Package	Shipping
MJE270	TO-225	500 Units/Box
MJE270G	TO-225 (Pb-Free)	500 Units/Box
MJE271	TO-225	500 Units/Box
MJE271G	TO-225 (Pb-Free)	500 Units/Box

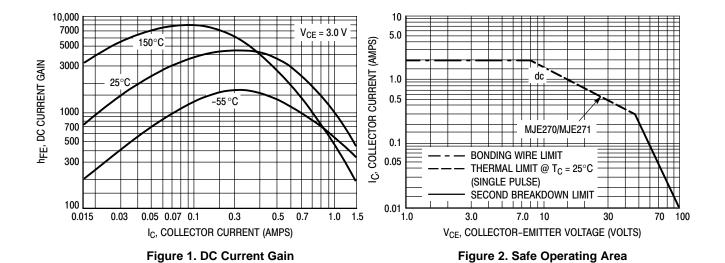
^{*}For additional information on our Pb–Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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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 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 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 $ \begin{aligned} \text{(I}_{\text{C}} &= 20 \text{ mAdc, V}_{\text{CE}} = 3.0 \text{ Vdc)} \\ \text{(I}_{\text{C}} &= 120 \text{ mAdc, V}_{\text{CE}} = 10 \text{ Vdc)} \end{aligned} $	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 ($I_C = 120 \text{ mAdc}, V_{CE} = 10 \text{ Vdc}$)	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

^{1.} Pulse Test: Pulse Width \leq 300 μ s, Duty Cycle \leq 2.0%. 2. $f_T = |h_{fe}| \bullet f_{test}$.

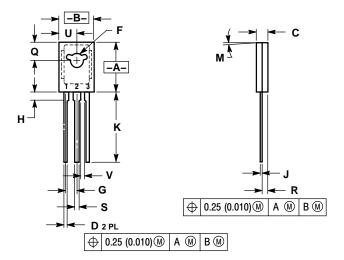


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PACKAGE DIMENSIONS

TO-225 CASE 77-09 ISSUE Z



NOTES:

- DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
- 2. CONTROLLING DIMENSION: INCH.
- 3. 077-01 THRU -08 OBSOLETE, NEW STANDARD 077-09.

	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
Α	0.425	0.435	10.80	11.04
В	0.295	0.305	7.50	7.74
С	0.095	0.105	2.42	2.66
D	0.020	0.026	0.51	0.66
F	0.115	0.130	2.93	3.30
G	0.094 BSC		2.39 BSC	
Н	0.050	0.095	1.27	2.41
J	0.015	0.025	0.39	0.63
K	0.575	0.655	14.61	16.63
M	5° TYP		5° TYP	
Q	0.148	0.158	3.76	4.01
R	0.045	0.065	1.15	1.65
S	0.025	0.035	0.64	0.88
U	0.145	0.155	3.69	3.93
٧	0.040		1.02	

STYLE 3:

N 1. BASE 2. COLLECTOR 3. EMITTER

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