

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

• High DC Current Gain

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

• These Devices are Pb-Free and are RoHS Compliant

MAXIMUM RATINGS

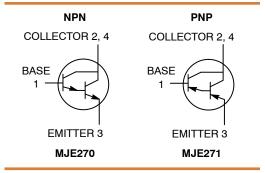
Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V _{CEO}	100	Vdc
Collector-Base Voltage	V _{CB}	100	Vdc
Emitter-Base Voltage	V _{EB}	5.0	Vdc
Collector Current - Continuous	I _C	2.0	Adc
Collector Current - Peak	I _{CM}	4.0	Adc
Base Current	Ι _Β	0.1	Adc
Total Power Dissipation @ T _C = 25°C Derate above 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

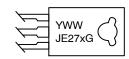
Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	8.33	°C/W
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	83.3	°C/W

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 [†]
MJE270G	TO-225 (Pb-Free)	500 Units / Box
MJE270TG	TO-225 (Pb-Free)	50 Units / Box

DISCONTINUED (Note 1)

1

MJE271G (TO-225 Pb-Free)	500 Units / Box
-----------	--------------------	-----------------

- †For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.
- DISCONTINUED: This device is not recommended for new design. Please contact your **onsemi** representative for information. The most current information on this device may be available on www.onsemi.com.

MJE270G (NPN), MJE271G (PNP)

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

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Sustaining Voltage (Note 2) (I _C = 10 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 Vdc, I _E = 0)	Ісво	-	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 2)				
DC Current Gain ($I_C = 20 \text{ mAdc}$, $V_{CE} = 3.0 \text{ Vdc}$) ($I_C = 120 \text{ mAdc}$, $V_{CE} = 10 \text{ Vdc}$)	h _{FE}	500 1500	- -	_
Collector–Emitter Saturation Voltage (I_C = 20 mAdc, I_B = 0.2 mAdc) (I_C = 120 mAdc, I_B = 1.2 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 3) (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.

^{3.} $f_T = |h_{fe}| \cdot f_{test}$.

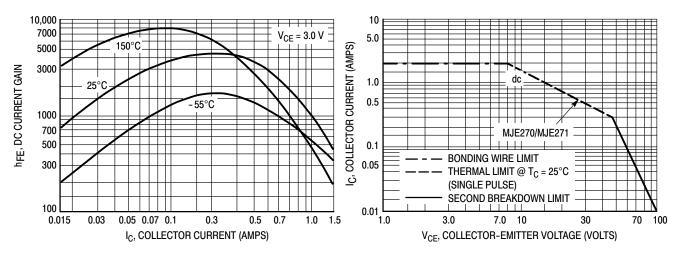
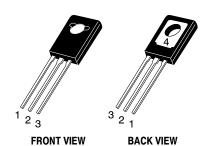


Figure 1. DC Current Gain

Figure 2. Safe Operating Area

^{2.} Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2.0%.

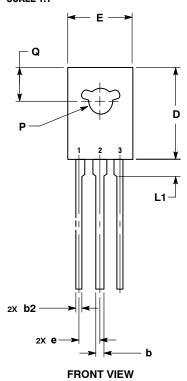


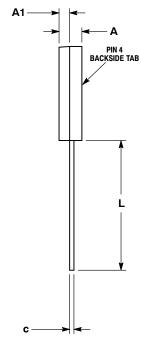


TO-225 CASE 77-09 **ISSUE AD**

DATE 25 MAR 2015

SCALE 1:1





SIDE VIEW

- NOTES:

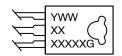
 1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.

 2. CONTROLLING DIMENSION: MILLIMETERS.

 3. NUMBER AND SHAPE OF LUGS OPTIONAL.

	MILLIMETERS				
DIM	MIN	MAX			
Α	2.40	3.00			
A1	1.00	1.50			
b	0.60	0.90			
b2	0.51	0.88			
C	0.39	0.63			
D	10.60	11.10			
E	7.40	7.80			
е	2.04	2.54			
L	14.50	16.63			
L1	1.27	2.54			
P	2.90	3.30			
Q	3.80	4.20			

GENERIC MARKING DIAGRAM*



= Year ww = Work Week XXXXX = Device Code = Pb-Free Package

*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "•", may or may not be present. Some products may not follow the Generic Marking.

,	EMITTER COLLECTOR BASE	2., 4.	CATHODE ANODE GATE	STYLE 3: PIN 1. 2., 4. 3.	COLLECTOR	,		STYLE 5: PIN 1. 2., 4. 3.	
	CATHODE GATE	,	MT 1 GATE	STYLE 8: PIN 1. 2., 4.	GATE	STYLE 9: PIN 1. 2., 4.	GATE DRAIN	2., 4.	SOURCE DRAIN
3	ANODE	3	MT 2	3	DRAIN	3	SOURCE	3	GATE

DOCUMENT NUMBER:	98ASB42049B	Electronic versions are uncontrolled except when accessed directly from the Document Reposit Printed versions are uncontrolled except when stamped "CONTROLLED COPY" in red.			
DESCRIPTION:	TO-225		PAGE 1 OF 1		

onsemi and ONSEMI are trademarks of Semiconductor Components Industries, LLC dba onsemi or its subsidiaries in the United States and/or other countries. onsemi reserves the right to make changes without further notice to any products herein. onsemi nakes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does onsemi assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. onsemi does not convey any license under its patent rights nor the rights of others.

onsemi, Onsemi, and other names, marks, and brands are registered and/or common law trademarks of Semiconductor Components Industries, LLC dba "onsemi" or its affiliates and/or subsidiaries in the United States and/or other countries. onsemi owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of onsemi's product/patent coverage may be accessed at www.onsemi.com/site/pdf/Patent-Marking.pdf. Onsemi reserves the right to make changes at any time to any products or information herein, without notice. The information herein is provided "as-is" and onsemi makes no warranty, representation or guarantee regarding the accuracy of the information, product features, availability, functionality, or suitability of its products for any particular purpose, nor does onsemi assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. Buyer is responsible for its products and applications using onsemi products, including compliance with all laws, regulations and safety requirements or standards, regardless of any support or applications information provided by onsemi. "Typical" parameters which may be provided in onsemi data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. onsemi does not convey any license under any of its intellectual property rights nor the rights of others. onsemi products are not designed, intended, or authorized for use as a critical component in life support systems or any FDA class 3 medical devices with a same or similar classification in a foreign jurisdiction or any devices intended for implantation in the human body. Should Buyer purchase

ADDITIONAL INFORMATION

TECHNICAL PUBLICATIONS:

 $\textbf{Technical Library:} \ \underline{www.onsemi.com/design/resources/technical-documentation}$

onsemi Website: www.onsemi.com

ONLINE SUPPORT: www.onsemi.com/support

For additional information, please contact your local Sales Representative at

www.onsemi.com/support/sales