MJE3439G

NPN Silicon High-Voltage Power Transistor

This device is designed for use in line−operated equipment requiring high f_T.

Features

- High DC Current Gain
- High Current−Gain − Bandwidth Product
- Low Output Capacitance
- These Devices are Pb−Free and are RoHS Compliant*

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector−Emitter Voltage	V_{CEO}	350	Vdc
Collector−Base Voltage	V_{CB}	450	Vdc
Emitter−Base Voltage	V_{EB}	5.0	Vdc
Collector Current − Continuous	I_C	0.3	Adc
Base Current	I_B	150	mAdc
Total Power Dissipation @ $T_C = 25^\circ C$ Derate above 25°C	P_D	 15 0.12	 W mW/°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	θ_{JC}	8.33	°C/W

ON Semiconductor®

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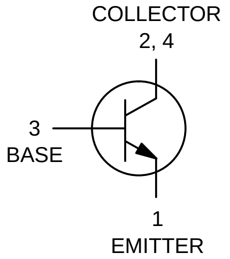
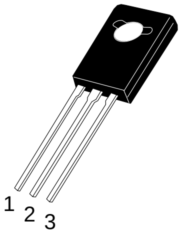
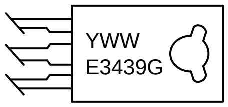
0.3 AMPERE
POWER TRANSISTOR
NPN SILICON
350 VOLTS, 15 WATTS





TO−225
CASE 77−09
STYLE 1

MARKING DIAGRAM



Y	=	Year
WW	=	Work Week
E3439	=	Device Code
G	=	Pb−Free Package

ORDERING INFORMATION

Device	Package	Shipping
MJE3439G	TO−225 (Pb−Free)	500 Units/Box

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

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

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector−Emitter Sustaining Voltage (I_C = 5.0 mAdc, I_B = 0)	$V_{CEO(sus)}$	350	–	Vdc
Collector Cutoff Current (V_{CE} = 300 Vdc, I_B = 0)	I_{CEO}	–	20	μAdc
Collector Cutoff Current (V_{CE} = 450 Vdc, $V_{EB(off)}$ = 1.5 Vdc)	I_{CEX}	–	500	μAdc
Collector Cutoff Current (V_{CB} = 350 Vdc, I_E = 0)	I_{CBO}	–	20	μAdc
Emitter Cutoff Current (V_{BE} = 5.0 Vdc, I_C = 0)	I_{EBO}	–	20	μAdc
ON CHARACTERISTICS				
DC Current Gain (I_C = 2.0 mAdc, V_{CE} = 10 Vdc) (I_C = 20 mAdc, V_{CE} = 10 Vdc)	h_{FE}	 30 15	 – 200	–
Collector−Emitter Saturation Voltage (I_C = 50 mAdc, I_B = 4.0 mAdc)	$V_{CE(sat)}$	–	0.5	Vdc
Base−Emitter Saturation Voltage (I_C = 50 mAdc, I_B = 4.0 mAdc)	$V_{BE(sat)}$	–	1.3	Vdc
Base−Emitter On Voltage (I_C = 50 mAdc, V_{CE} = 10 Vdc)	$V_{BE(on)}$	–	0.8	Vdc
DYNAMIC CHARACTERISTICS				
Current−Gain − Bandwidth Product (I_C = 10 mAdc, V_{CE} = 10 Vdc, f = 5.0 MHz)	f_T	15	–	MHz
Output Capacitance (V_{CB} = 10 Vdc, I_E = 0, f = 1.0 MHz)	C_{ob}	–	10	pF
Small−Signal Current Gain (I_C = 5.0 mAdc, V_{CE} = 10 Vdc, f = 1.0 kHz)	h_{fe}	25	–	–

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.

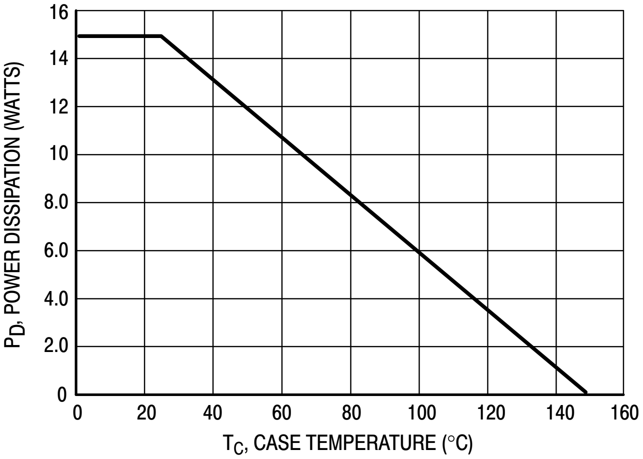


Figure 1. Power−Temperature Derating Curve

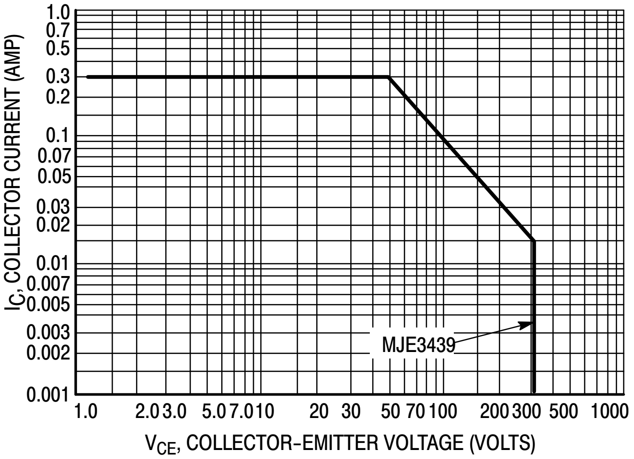
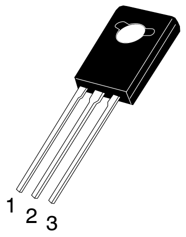


Figure 2. Active−Region Safe Operating Area

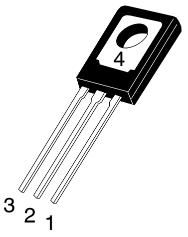
The Safe Operating Area Curves indicate I_C − V_{CE} limits below which the device will not enter secondary breakdown. Collector load lines for specific circuits must fall within the applicable Safe Area to avoid causing a catastrophic failure. To insure operation below the maximum T_J, power−temperature derating must be observed for both steady state and pulse power conditions.

TO−225
CASE 77−09
ISSUE AD

DATE 25 MAR 2015



FRONT VIEW

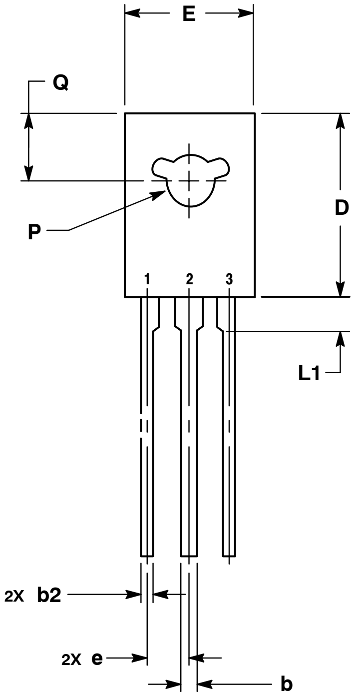


BACK VIEW

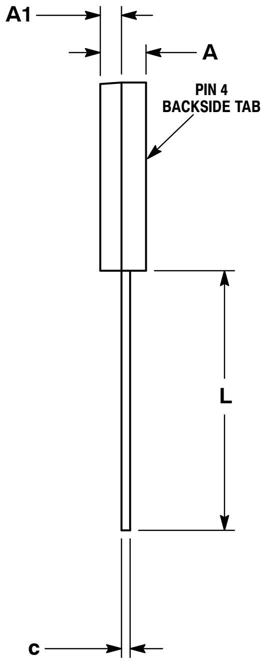
SCALE 1:1

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
A	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
e	2.04	2.54
L	14.50	16.63
L1	1.27	2.54
P	2.90	3.30
Q	3.80	4.20

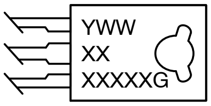


FRONT VIEW



SIDE VIEW

GENERIC MARKING DIAGRAM*



Y = Year
WW = Work Week
XXXXX = Device Code
G = 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.

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

STYLE 2:
PIN 1. CATHODE
2., 4. ANODE
3. GATE

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

STYLE 4:
PIN 1. ANODE 1
2., 4. ANODE 2
3. GATE

STYLE 5:
PIN 1. MT 1
2., 4. MT 2
3. GATE

STYLE 6:
PIN 1. CATHODE
2., 4. GATE
3. ANODE

STYLE 7:
PIN 1. MT 1
2., 4. GATE
3. MT 2

STYLE 8:
PIN 1. SOURCE
2., 4. GATE
3. DRAIN

STYLE 9:
PIN 1. GATE
2., 4. DRAIN
3. SOURCE

STYLE 10:
PIN 1. SOURCE
2., 4. DRAIN
3. GATE

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DESCRIPTION:	**TO−225**	**PAGE 1 OF 1**

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