

*New Jersey Semi-Conductor Products, Inc.*

20 STERN AVE.  
SPRINGFIELD, NEW JERSEY 07081  
U.S.A.

## NPN Silicon High-Voltage Power Transistors

... designed for use in line-operated equipment requiring high  $f_T$ .

- High DC Current Gain  
 $h_{FE} = 40-160 @ I_C = 20 \text{ mAdc}$
- Current Gain Bandwidth Product —  
 $f_T = 15 \text{ MHz (Min) @ } I_C = 10 \text{ mAdc}$
- Low Output Capacitance  
 $C_{ob} = 10 \text{ pF (Max) @ } f = 1.0 \text{ MHz}$

### MAXIMUM RATINGS

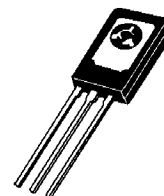
Rating	Symbol	Value	Unit
Collector-Emitter Voltage	$V_{CEO}$	350	Vdc
Collector-Base Voltage	$V_{CB}$	450	Vdc
Emitter-Base Voltage	$V_{EB}$	5.0	Vdc
Collector Current — Continuous	$I_C$	0.3	Adc
Base Current	$I_B$	150	mAdc
Total Power Dissipation @ $T_C = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$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

**MJE3439**

0.3 AMPERE  
POWER TRANSISTOR  
NPN SILICON  
350 VOLTS  
15 WATTS



TO-225AA TYPE

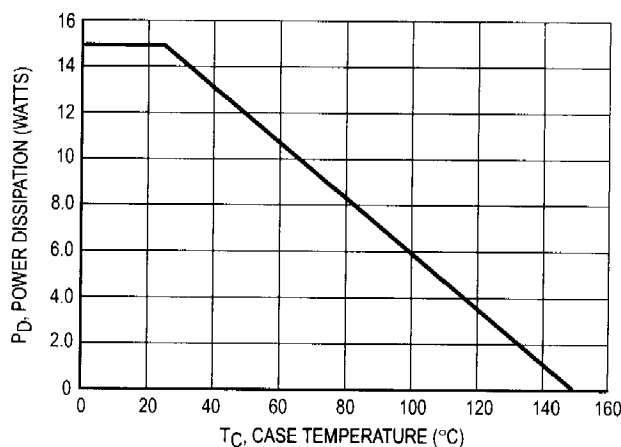


Figure 1. Power-Temperature Derating Curve

NJ Semi-Conductors reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by NJ Semi-Conductors is believed to be both accurate and reliable at the time of going to press. However, NJ Semi-Conductors assumes no responsibility for any errors or omissions discovered in its use. NJ Semi-Conductors encourages customers to verify that datasheets are current before placing orders.



Quality Semi-Conductors

**MJE3439**

**ELECTRICAL CHARACTERISTICS** ( $T_C = 25^\circ\text{C}$  unless otherwise noted)

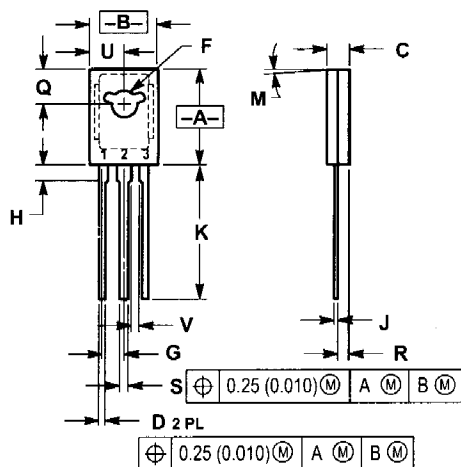
Characteristic	Symbol	Min	Max	Unit
<b>OFF CHARACTERISTICS</b>				
Collector-Emitter Sustaining Voltage ( $I_C = 5.0\text{ mAdc}$ , $I_B = 0$ )	$V_{CE(sus)}$	350	—	Vdc
Collector Cutoff Current ( $V_{CE} = 300\text{ Vdc}$ , $I_B = 0$ )	$I_{CEO}$	—	20	$\mu\text{Adc}$
Collector Cutoff Current ( $V_{CE} = 450\text{ Vdc}$ , $V_{EB(off)} = 1.5\text{ Vdc}$ )	$I_{CEX}$	—	500	$\mu\text{Adc}$
Collector Cutoff Current ( $V_{CB} = 350\text{ Vdc}$ , $I_E = 0$ )	$I_{CBO}$	—	20	$\mu\text{Adc}$
Emitter Cutoff Current ( $V_{BE} = 5.0\text{ Vdc}$ , $I_C = 0$ )	$I_{EBO}$	—	20	$\mu\text{Adc}$

**ON CHARACTERISTICS**

DC Current Gain ( $I_C = 2.0\text{ mAdc}$ , $V_{CE} = 10\text{ Vdc}$ ) ( $I_C = 20\text{ mAdc}$ , $V_{CE} = 10\text{ Vdc}$ )	$h_{FE}$	30 15	— 200	—
Collector-Emitter Saturation Voltage ( $I_C = 50\text{ mAdc}$ , $I_B = 4.0\text{ mAdc}$ )	$V_{CE(sat)}$	—	0.5	Vdc
Base-Emitter Saturation Voltage ( $I_C = 50\text{ mAdc}$ , $I_B = 4.0\text{ mAdc}$ )	$V_{BE(sat)}$	—	1.3	Vdc
Base-Emitter On Voltage ( $I_C = 50\text{ mAdc}$ , $V_{CE} = 10\text{ Vdc}$ )	$V_{BE(on)}$	—	0.8	Vdc

**DYNAMIC CHARACTERISTICS**

Current-Gain — Bandwidth Product ( $I_C = 10\text{ mAdc}$ , $V_{CE} = 10\text{ Vdc}$ , $f = 5.0\text{ MHz}$ )	$f_T$	15	—	MHz
Output Capacitance ( $V_{CB} = 10\text{ Vdc}$ , $I_E = 0$ , $f = 1.0\text{ MHz}$ )	$C_{ob}$	—	10	pF
Small-Signal Current Gain ( $I_C = 5.0\text{ mAdc}$ , $V_{CE} = 10\text{ Vdc}$ , $f = 1.0\text{ kHz}$ )	$h_{fe}$	25	—	—



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

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.425	0.435	10.80	11.04
B	0.295	0.305	7.50	7.74
C	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	
H	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	0.055	1.15	1.39
S	0.025	0.035	0.64	0.88
U	0.145	0.155	3.69	3.93
V	0.040	—	1.02	—

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

**CASE 77-08  
 TO-225AA TYPE  
 ISSUE V**