New Jersey Semi-Conductor Products, Inc.

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

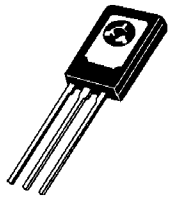
MJE3439

NPN Silicon High-Voltage Power Transistors

0.3 AMPERE
POWER TRANSISTOR
NPN SILICON
350 VOLTS
15 WATTS

. . . designed for use in line–operated equipment requiring high f_T.

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



TO–225AA TYPE

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°C Derate above 25°C	P_D	15 0.12	Watts 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	θ_{JC}	8.33	°C/W

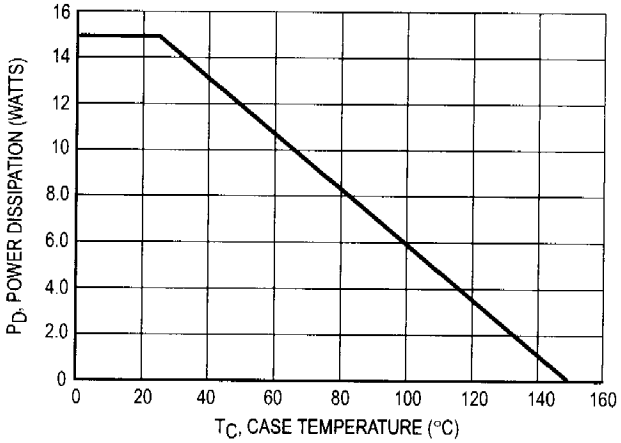
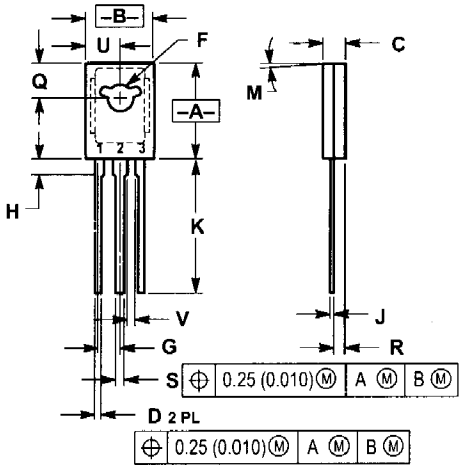


Figure 1. Power–Temperature Derating Curve

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	—	—



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

	INCHES		MILLIMETERS	
DIM	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