

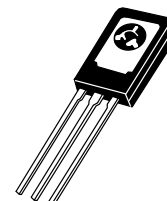
# MJE340

## Plastic Medium Power NPN Silicon Transistor

... useful for high-voltage general purpose applications.

- Suitable for Transformerless, Line-Operated Equipment
- Thermopad Construction Provides High Power Dissipation Rating for High Reliability

**0.5 AMPERE  
POWER TRANSISTOR  
NPN SILICON  
300 VOLTS  
20 WATTS**



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

### MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	$V_{CEO}$	300	Vdc
Emitter-Base Voltage	$V_{EB}$	3.0	Vdc
Collector Current — Continuous	$I_C$	500	mAdc
Total Power Dissipation @ $T_C = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	20 0.16	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	$\theta_{JC}$	6.25	$^\circ\text{C/W}$

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

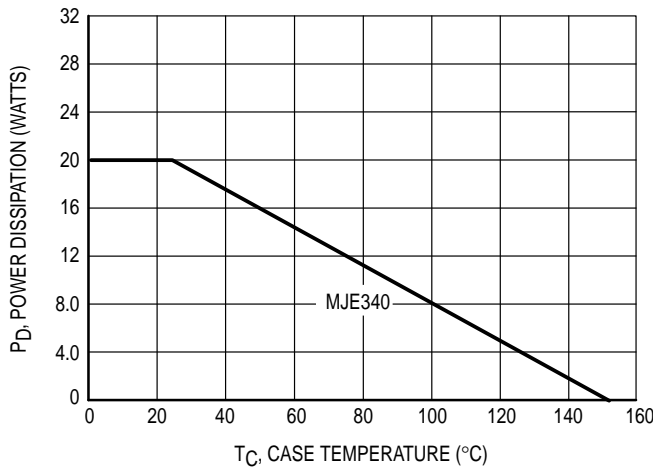
Characteristic	Symbol	Min	Max	Unit
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#### OFF CHARACTERISTICS

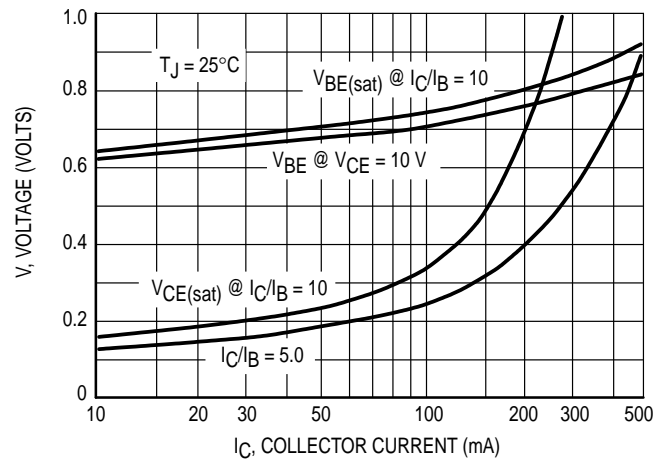
Collector-Emitter Sustaining Voltage ( $I_C = 1.0$ mAdc, $I_B = 0$ )	$V_{CEO(sus)}$	300	—	Vdc
Collector Cutoff Current ( $V_{CB} = 300$ Vdc, $I_E = 0$ )	$I_{CBO}$	—	100	$\mu\text{Adc}$
Emitter Cutoff Current ( $V_{EB} = 3.0$ Vdc, $I_C = 0$ )	$I_{EBO}$	—	100	$\mu\text{Adc}$

#### ON CHARACTERISTICS

DC Current Gain ( $I_C = 50$ mAdc, $V_{CE} = 10$ Vdc)	$h_{FE}$	30	240	—
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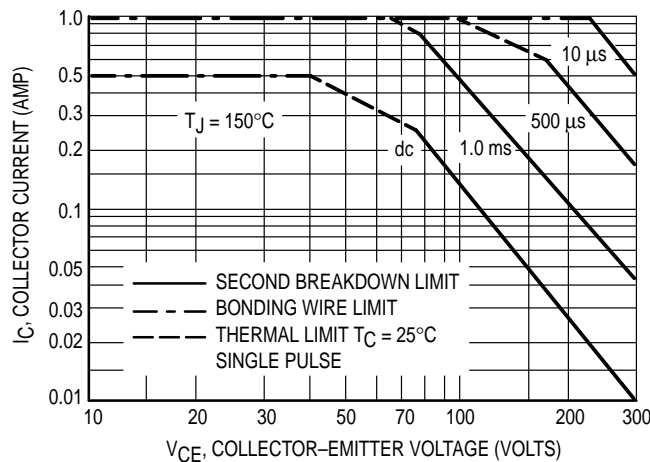


**Figure 1. Power Temperature Derating**



**Figure 2. "On" Voltages**

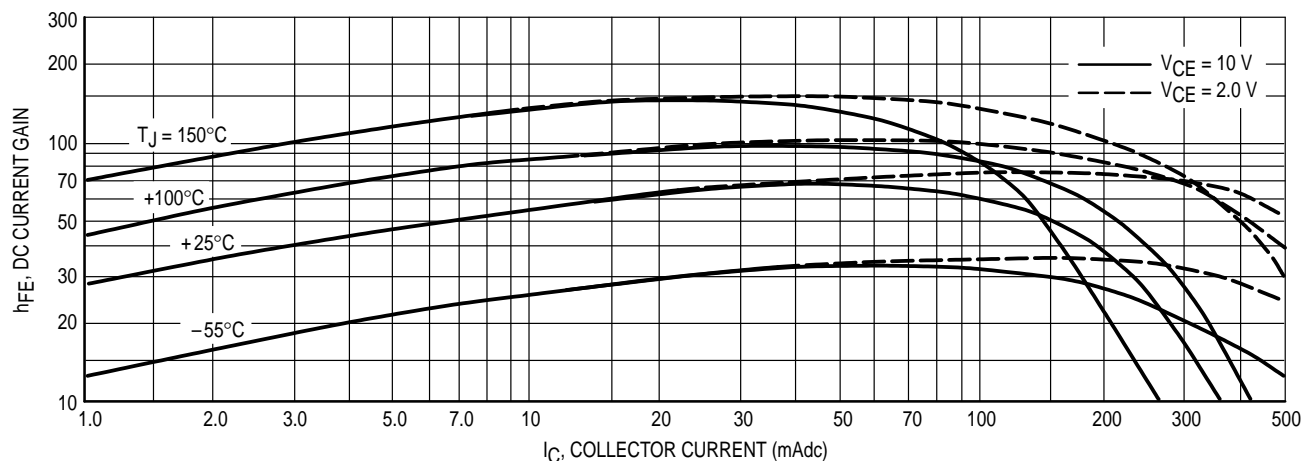
**ACTIVE-REGION SAFE OPERATING AREA**



**Figure 3. MJE340**

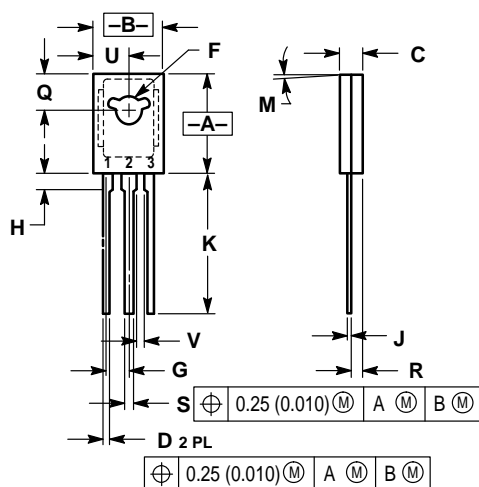
There are two limitations on the power handling ability of a transistor: average junction temperature and second breakdown. Safe operating area curves indicate  $I_C - V_{CE}$  limits of the transistor that must be observed for reliable operation; i.e., the transistor must not be subjected to greater dissipation than the curves indicate.

The data of Figure 3 is based on  $T_{J(pk)} = 150^\circ\text{C}$ ;  $T_C$  is variable depending on conditions. Second breakdown pulse limits are valid for duty cycles to 10% provided  $T_{J(pk)} \leq 150^\circ\text{C}$ . At high case temperatures, thermal limitations will reduce the power that can be handled to values less than the limitations imposed by second breakdown.



**Figure 4. DC Current Gain**

## PACKAGE DIMENSIONS



## 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:

1. EMITTER
2. COLLECTOR
3. BASE

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

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