

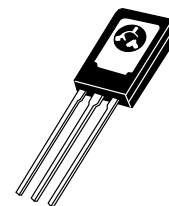
Complementary Silicon Power Transistors

... designed specifically for use with the MC3419 Solid-State Subscriber Loop Interface Circuit (SLIC).

- High Safe Operating Area
I_{S/B} @ 40 V, 1.0 s = 0.375 A — TO-126
- Collector-Emitter Sustaining Voltage
V_{CEO(sus)} = 100 Vdc (Min)
- High DC Current Gain
h_{FE} @ 120 mA, 10 V = 1500 (Min)

NPN
MJE270
PNP
MJE271

2.0 AMPERE
COMPLEMENTARY
POWER DARLINGTON
TRANSISTORS
100 VOLTS
15 WATTS



CASE 77-08
TO-225AA TYPE

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 — Peak	I _C	2.0 4.0	Adc
Base Current	I _B	0.1	Adc
Total Power Dissipation @ T _C = 25°C Derate above 25°C	P _D	15 0.12	Watts W/°C
Total Power Dissipation @ T _A = 25°C Derate above 25°C	P _D	1.5 0.012	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	R _{θJC}	8.33	°C/W
Thermal Resistance, Junction to Ambient	R _{θJA}	83.3	°C/W

MJE270 MJE271

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

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector–Emitter Sustaining Voltage (1) (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)	I _{CBO}	—	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
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ON CHARACTERISTICS (1)

DC Current Gain (I _C = 20 mAdc, V _{CE} = 3.0 Vdc) (I _C = 120 mAdc, V _{CE} = 10 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 mAdc, V _{CE} = 10 Vdc)	V _{BE(on)}	—	2.0	Vdc

DYNAMIC CHARACTERISTICS

Current Gain — Bandwidth Product (2) (I _C = 0.05 Adc, V _{CE} = 5.0 Vdc, f _{test} = 1.0 MHz)	f _T	6.0	—	MHz
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NOTES:

- (1) Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2.0%.
- (2) f_T = |h_{fe}| • f_{test}.

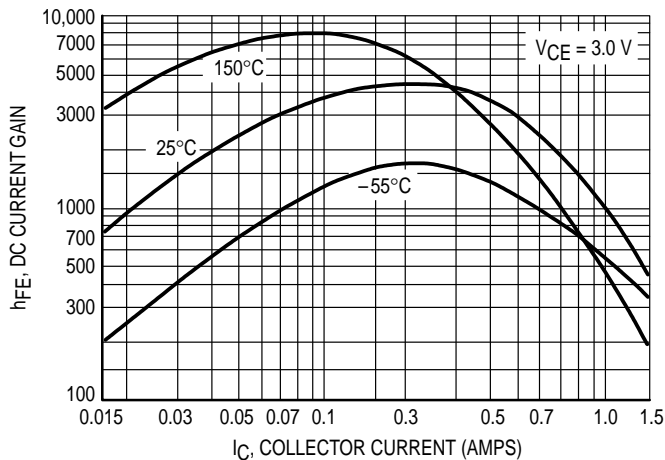


Figure 1. DC Current Gain

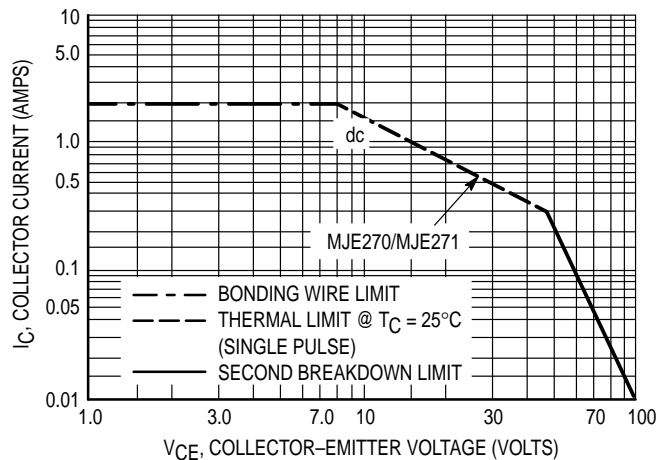
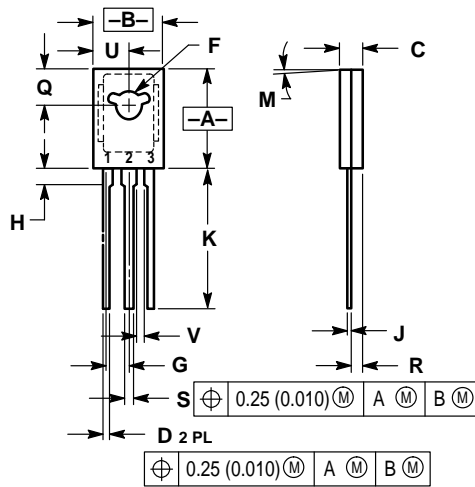


Figure 2. Safe Operating Area

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

CASE 77-08
 TO-225AA TYPE
 ISSUE V

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How to reach us:

USA / EUROPE: Motorola Literature Distribution;
P.O. Box 20912; Phoenix, Arizona 85036. 1-800-441-2447

JAPAN: Nippon Motorola Ltd.; Tatsumi-SPD-JLDC, Toshikatsu Otsuki,
6F Seibu-Butsuryu-Center, 3-14-2 Tatsumi Koto-Ku, Tokyo 135, Japan. 03-3521-8315

MFAX: RMFAX0@email.sps.mot.com – TOUCHTONE (602) 244-6609
INTERNET: <http://Design-NET.com>

HONG KONG: Motorola Semiconductors H.K. Ltd.; 8B Tai Ping Industrial Park,
51 Ting Kok Road, Tai Po, N.T., Hong Kong. 852-26629298

