

MOTOROLA
SEMICONDUCTOR
TECHNICAL DATA

MJ2955 — See Pg. 3-6
MJ2955A — See Pg. 3-9

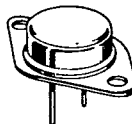
MJ3029

NPN SILICON HIGH-VOLTAGE TRANSISTOR

... designed for TV horizontal and vertical deflection amplifier circuits.

- High Collector-Emitter Sustaining Voltage — $V_{CE0(sus)} = 250 \text{ Vdc (Min) MJ3029}$
- Fast Fall Time in Horizontal Deflection
- Excellent Gain Linearity for Vertical Deflection — $h_{fe} @ 0.4 \text{ Adc, } h_{fe} @ 0.3 \text{ Adc} = 0.95 \text{ (Min)}$

5 AMPERE
POWER TRANSISTOR
NPN SILICON
250-325 VOLTS
125 WATTS

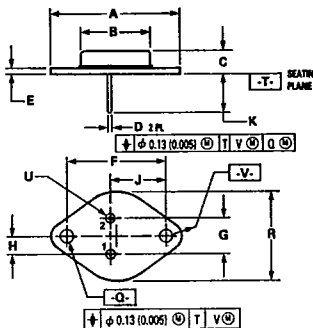


MAXIMUM RATINGS

Rating	Symbol	MJ3029	Unit
Collector-Emitter Voltage	V_{CE0}	250	Vdc
Collector-Emitter Voltage	V_{CER}	500	Vdc
Collector-Emitter Voltage	V_{CEX}	—	Vdc
Emitter-Base Voltage	V_{EB}	5.0	Vdc
Collector Current — Continuous	I_C	5.0	A dc
Base Current	I_B	1.0	A dc
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	125	Watts
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	θ_{JC}	1.0	$^\circ\text{C/W}$



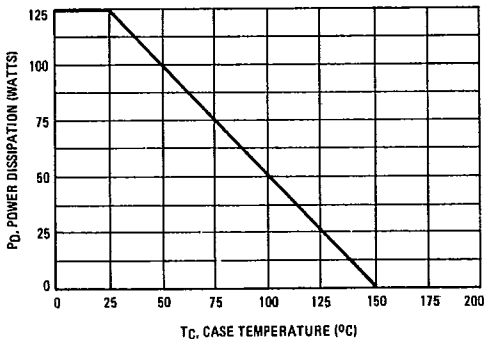
STYLE 1:
PIN 1. BASE
2. EMITTER
CASE COLLECTOR

- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. ALL RULES AND NOTES ASSOCIATED WITH REFERENCED TO-204AA OUTLINE SHALL APPLY.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	—	29.37	—	1.550
B	—	21.08	—	0.830
C	6.25	8.25	0.250	0.325
D	0.97	1.09	0.038	0.043
E	1.40	1.77	0.055	0.070
F	30.15 BSC		1.187 BSC	
G	10.92 BSC		0.430 BSC	
H	5.46 BSC		0.215 BSC	
J	16.89 BSC		0.665 BSC	
K	11.18	12.19	0.440	0.480
Q	3.84	4.19	0.151	0.165
R	—	26.67	—	1.050
U	4.83	5.33	0.190	0.210
V	3.84	4.19	0.151	0.165

CASE 1-06
TO-204AA
(TO-3)

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(1) (I _C = 0.1 Adc, I _B = 0)	MJ3029	V _{CEO(sus)}	250	—	Vdc
Collector Cutoff Current (V _{CE} = 500 Vdc, R _{BE} = 1.5 k Ohms)	MJ3029	I _{CER}	—	1.0	mA _{dc}
ON CHARACTERISTICS					
DC Current Gain (I _C = 0.3 Adc, V _{CE} = 6.0 Vdc)(1) (I _C = 0.4 Adc, V _{CE} = 5.0 Vdc)(1)	h _{FE1}	25	—	—	
	h _{FE2}	30	—	—	
Gain Linearity	h _{FE2} h _{FE1}	0.95	—	—	

(1) Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2.0%.

FIGURE 2 — DC CURRENT GAIN

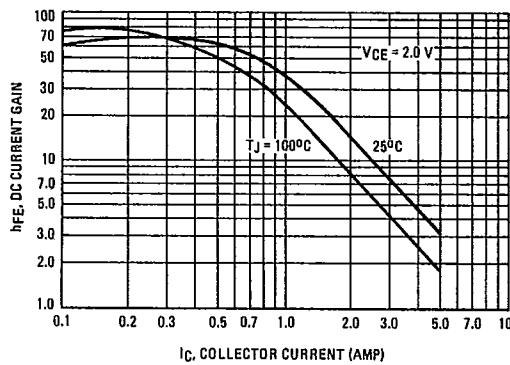
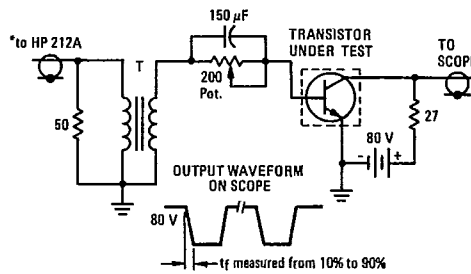


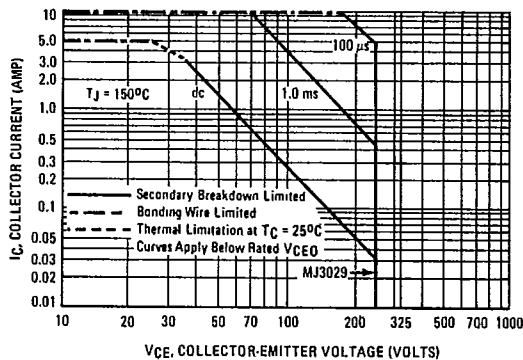
FIGURE 3 — TEST FOR FALL TIME



*HP 212A: Set for 10 μs wide pulses at 2000 pulses per sec. (500 μs intervals). Adjust for I_{B1} = 0.8 A.
Bias: Adjust to 1.5 V on a VTVM across the 200 Ω Pot.
T: Pulse Transformer: Motorola Part No. 25D68782A01.

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FIGURE 4 — ACTIVE REGION SAFE OPERATING AREA



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 4 is based on T_{J(pk)} = 150°C; T_C is variable depending on conditions. Second breakdown pulse limits are valid for duty cycles to 10% provided T_{J(pk)} ≤ 150°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.