

MJ2840 (SILICON)

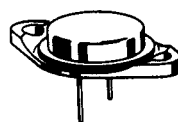
MJ2841

HIGH-POWER NPN SILICON TRANSISTORS

... designed for use in audio amplifier circuits utilizing complementary symmetry.

- Excellent Safe Operating Area
- DC Current Gain –
 $h_{FE} = 20 - 100 @ I_C = 3.0 \text{ Adc (MJ2840)}$
 $= 4.0 \text{ Adc (MJ2841)}$
- Complement to PNP MJ2940 and MJ2941

**10 AMPERE
POWER TRANSISTORS**
NPN SILICON
60-80 VOLTS
150 WATTS



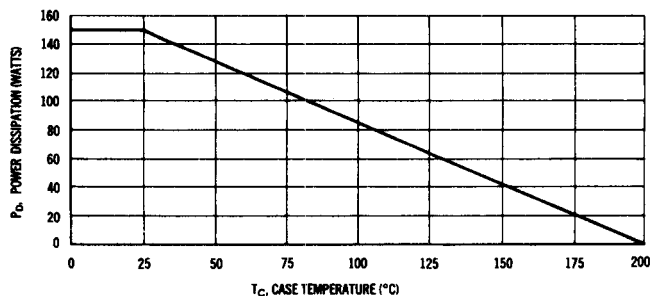
MAXIMUM RATINGS

Rating	Symbol	MJ2840	MJ2841	Unit
Collector-Emitter Voltage	V_{CE0}	60	80	Vdc
Collector-Base Voltage	V_{CB}	60	80	Vdc
Emitter-Base Voltage	V_{EB}	4.0		Vdc
Collector Current – Continuous	I_C	10		Adc
Base Current	I_B	4.0		Adc
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	150	0.85	Watts W/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-65 to +200		$^\circ\text{C}$

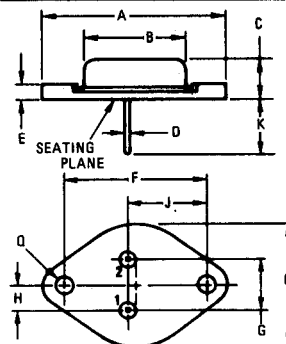
THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	θ_{JC}	1.17	$^\circ\text{C/W}$

FIGURE 1 – POWER-TEMPERATURE DERATING CURVE



Safe Area Limits are indicated by Figure 4. Both limits are applicable and must be observed.



STYLE 1:

PIN 1. BASE

2. EMITTER

CASE: COLLECTOR

NOTE:

1. DIM "Q" IS DIA.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	—	39.37	—	1.550
B	—	21.08	—	0.830
C	6.35	7.62	0.250	0.300
D	0.99	1.09	0.039	0.043
E	—	3.43	—	0.135
F	29.90	30.40	1.177	1.197
G	10.67	11.18	0.420	0.440
H	5.33	5.59	0.210	0.220
J	16.64	17.15	0.655	0.675
K	11.18	12.19	0.440	0.480
Q	3.84	4.09	0.151	0.161
R	—	26.67	—	1.050

CASE 11

MJ2840, MJ2841 (continued)

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

Characteristic	Symbol	Min	Max	Unit	
OFF CHARACTERISTICS					
Collector-Emitter Sustaining Voltage ⁽¹⁾ (I _C = 200 mAdc, I _B = 0)	MJ2840 MJ2841	V _{CEO(sus)}	60 80	— —	Vdc
Collector-Base Cutoff Current (V _{CB} = Rated V _{CB} , I _E = 0)	Both Types	I _{CBO}	0.1	—	mAdc
(V _{CB} = Rated V _{CB} , I _E = 0, T _C = 150°C)	Both Types		2.0	—	
Base-Emitter Cutoff Current (V _{BE} = 4.0 Vdc, I _C = 0)	Both Types	I _{EBO}	1.0	—	mAdc
ON CHARACTERISTICS					
DC Current Gain ⁽¹⁾ (I _C = 50 mAdc, V _{CE} = 10 Vdc)	Both Types	h _{FE}	40	—	—
(I _C = 3.0 Adc, V _{CE} = 2.0 Vdc)	MJ2840		20	100	
(I _C = 4.0 Adc, V _{CE} = 2.0 Vdc)	MJ2841		20	100	
Base-Emitter On Voltage ⁽¹⁾ (I _C = 3.0 Adc, V _{CE} = 2.0 Vdc)	MJ2840	V _{BE(on)}	—	1.3	Vdc
(I _C = 4.0 Adc, V _{CE} = 2.0 Vdc)	MJ2841		—	1.4	
DYNAMIC CHARACTERISTICS					
Current-Gain-Bandwidth Product (I _C = 0.5 Adc, V _{CE} = 10 Vdc, f = 1.0 MHz)	f _T	2.0	20		MHz

(1) Pulse Test: Pulse Width $\leq 300\text{ }\mu\text{s}$, Duty Cycle $\leq 2\%$.

FIGURE 2 — DC CURRENT GAIN

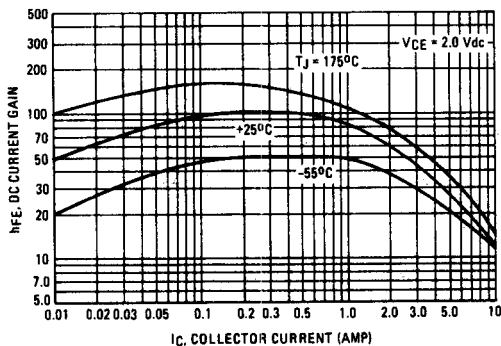


FIGURE 3 — "ON" VOLTAGES

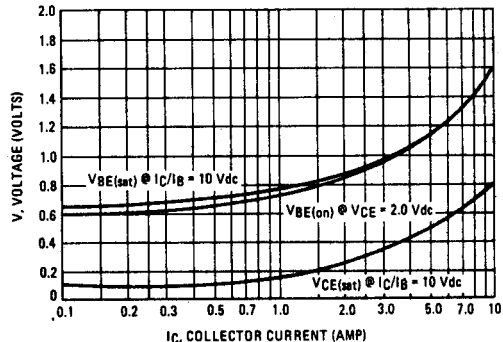
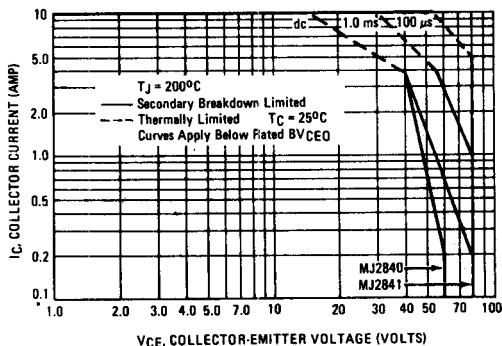


FIGURE 4 — ACTIVE-REGION SAFE OPERATING AREA



The Safe Operating Area Curves indicate I_C — V_{CE} limits below which the device will not enter secondary breakdown. Collector load lines for specific circuits must fall within the applicable Safe Area to avoid causing a catastrophic failure. To insure operation below the maximum T_J , power-temperature derating must be observed for both steady state and pulse power conditions.

MJ2901 (SILICON)

For Specifications, See MJ2801 Data.