MJ2801 NPN (SILICON)
MJ2901 PNP

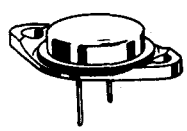
COMPLEMENTARY SILICON POWER TRANSISTORS

. . . designed for general-purpose amplifier and switching circuit applications.

- Low Collector-Emitter Saturation Voltage –
  $V_{CE(sat)}$ = 1.5 Vdc (Max) @ I_C = 8.0 Adc
- DC Current Gain –
  h_{FE} = 15 (Min) @ I_C = 8.0 Adc

15 AMPERE
POWER TRANSISTORS
COMPLEMENTARY SILICON

40 VOLTS
115 WATTS



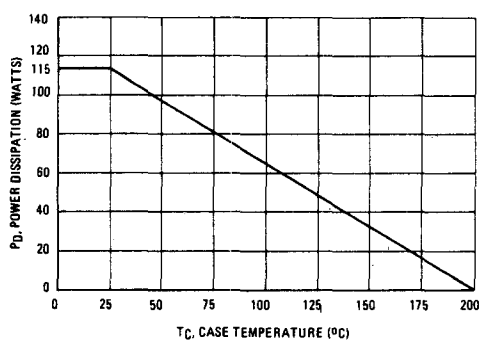
MAXIMUM RATINGS

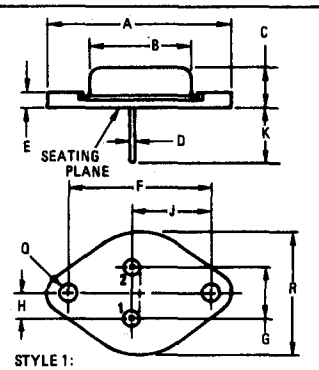
Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	40	Vdc
Collector-Base Voltage	V_{CB}	50	Vdc
Emitter-Base Voltage	V_{EB}	7.0	Vdc
Collector Current – Continuous	I_C	15	Adc
Base Current	I_B	7.0	Adc
Total Device Dissipation @ T_C = 25°C Derate above 25°C	P_D	115 0.657	Watts W/°C
Operating and Storage Junction Temperature Range	T_J,T_{stg}	-65 to +200	°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	θ_{JC}	1.52	°C/W

FIGURE 1 – POWER TEMPERATURE DERATING CURVE





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

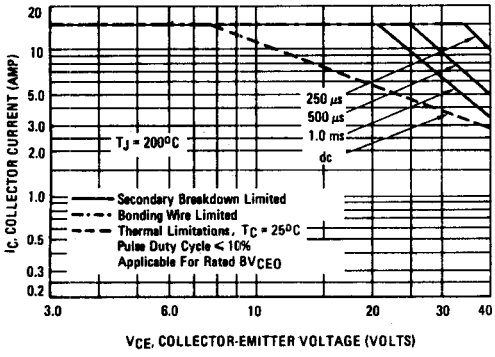
CASE 11

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

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Breakdown Voltage(1) (I_C = 200 mAdc, I_B = 0)	BV_{CEO}	40	–	Vdc
Collector Cutoff Current (V_{CE} = 50 Vdc, $V_{EB(off)}$ = 1.5 Vdc)	I_{CEX}	–	5.0	mAdc
Collector Cutoff Current (V_{CB} = 50 Vdc, I_E = 0) (V_{CB} = 50 Vdc, I_E = 0, T_C = 150°C)	I_{CBO}	– –	5.0 10	mAdc
Emitter Cutoff Current (V_{EB} = 7.0 Vdc, I_C = 0)	I_{EBO}	–	10	mAdc
ON CHARACTERISTICS				
DC Current Gain(1) (I_C = 8.0 Adc, V_{CE} = 4.0 Vdc)	h_{FE}	15	60	–
Collector-Emitter Saturation Voltage(1) (I_C = 8.0 Adc, I_B = 0.8 Adc)	$V_{CE(sat)}$	–	1.5	Vdc
Base-Emitter On Voltage(1) (I_C = 8.0 Adc, V_{CE} = 4.0 Vdc)	$V_{BE(on)}$	–	2.2	Vdc
DYNAMIC CHARACTERISTICS				
Current-Gain–Bandwidth Product (I_C = 0.4 Adc, V_{CE} = 10 Vdc, f = 1.0 MHz)	f_T	1.0	–	MHz

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

FIGURE 2 – 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.