

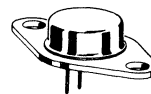
2N5887 thru 2N5901 (GERMANIUM)

GERMANIUM PNP POWER TRANSISTORS

... designed for low frequency switching and amplifier applications requiring to 7.0 amperes collector current.

- Low Collector-Emitter Cutoff Current –
 $I_{CEX} = 10 \text{ mA Max @ } 100^{\circ}\text{C with } V_{CE} \text{ to } 75 \text{ V}$
- Low Collector-Emitter Saturation Voltage –
 $V_{CE(sat)} = 0.4 \text{ V Max @ } I_C = 7.0 \text{ A}$
- Broad Range of Current Gain Available
- TO-66 Cold Weld All Aluminum Package
- Electrically Similar to 2N3611 Series

**7.0 AMPERE
POWER TRANSISTORS
PNP GERMANIUM
20-75 VOLTS
57 WATTS**



*MAXIMUM RATINGS

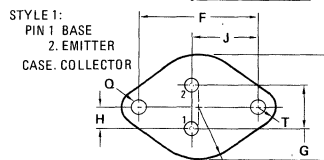
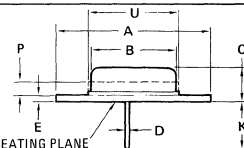
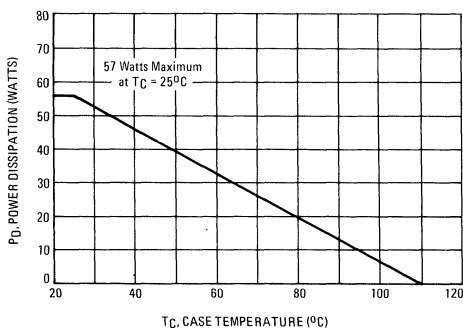
Rating	Symbol	2N5887	2N5888 2N5889 2N5893 2N5897 2N5901	2N5890 2N5894 2N5898	2N5891 2N5895 2N5899	2N5892 2N5896 2N5900	Unit
Collector-Emitter Voltage (Base Open)	V_{CEO}	15	25	35	45	60	Vdc
Collector-Emitter Voltage	V_{CES}	20	30	45	60	75	Vdc
Collector-Base Voltage	V_{CBO}	20	30	45	60	75	Vdc
Emitter-Base Voltage	V_{EBO}	← 20 →					Vdc
Collector Current – Continuous	I_C	← 7.0 →					Adc
Base Current – Continuous	I_B	← 2.0 →					Adc
Operating Case and Storage Temperature Range	T_C, T_{stg}	← -65 to +110 →					$^{\circ}\text{C}$
Total Device Dissipation @ $T_C = 25^{\circ}\text{C}$ Derate above 25°C	P_D	← 57 →					Watts W/ $^{\circ}\text{C}$

*Indicates JEDEC Registered Data

THERMAL CHARACTERISTICS

Characteristic	Symbol	Value	Unit
Thermal Resistance, Junction to Case	θ_{JC}	15	$^{\circ}\text{C/W}$

FIGURE 1 – POWER-TEMPERATURE DERATING CURVE



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
B	11.94	12.70	0.470	0.500
C	6.35	8.64	0.250	0.340
D	0.71	0.86	0.028	0.034
E	1.27	1.91	0.050	0.075
F	24.33	24.43	0.958	0.962
G	4.83	5.33	0.190	0.210
H	2.41	2.67	0.095	0.105
J	14.48	14.99	0.570	0.590
K	9.14	—	0.360	—
P	—	1.27	—	0.050
Q	3.61	3.86	0.142	0.152
S	—	8.89	—	0.350
T	—	3.68	—	0.145
U	—	15.75	—	0.620

CASE 80-02
TO-66

2N5887 thru 2N5901 (continued)

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

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Breakdown Voltage (1) (I _C = 500 mAdc, I _B = 0)	BV _{CEO}			Vdc
2N5887		15	—	
2N5888,89,93,97,2N5901		25	—	
2N5890,94,98		35	—	
2N5891,95,99		45	—	
2N5892,96,2N5900		60	—	
Collector-Emitter Breakdown Voltage (1) (I _C = 250 mAdc, V _{BE} = 0)	BV _{CES}			Vdc
2N5887		20	—	
2N5888,89,93,97,2N5901		30	—	
2N5890,94,98		45	—	
2N5891,95,99		60	—	
2N5892,96,2N5900		75	—	
Collector Cutoff Current (V _{CE} = 1/2 V _{CEO} Max)	I _{CEO}	—	30	mAdc
All Types				
Collector Cutoff Current (V _{CE} = V _{CES} Max, V _{BE} = 1.0 Vdc)	I _{CEx}	—	5.0	mAdc
All Types				
(V _{CE} = V _{CES} Max, V _{BE} = 1.0 Vdc, T _C = 100°C)		—	10	
Collector Cutoff Current (V _{CB} = 2.0 Vdc)	I _{CBO}	—	0.06	mAdc
All Types				
(V _{CB} = 15 Vdc)		—	1.0	
(V _{CB} = 25 Vdc)		—	1.0	
(V _{CB} = 35 Vdc)		—	1.0	
(V _{CB} = 45 Vdc)		—	1.0	
(V _{CB} = 60 Vdc)		—	1.0	
Emitter Cutoff Current (V _{BE} = 20 Vdc, I _C = 0)	I _{EBO}	—	1.0	mAdc
All Types				
ON CHARACTERISTICS (1)				
DC Current Gain (I _C = 0.5 Adc, V _{CE} = 2.0 Vdc)	h _{FE}			—
2N5887,88		15	350	
2N5889,90,91,92		30	70	
2N5893,94,95,96		60	120	
2N5897,98,99,2N5900		100	200	
2N5901		175	350	
(I _C = 3.0 Adc, V _{CE} = 2.0 Vdc)		10	—	
2N5887,88		15	—	
2N5889,90,91,92		30	—	
2N5893,94,95,96		50	—	
2N5897,98,99,2N5900		75	—	
2N5901		5.0	—	
(I _C = 7.0 Adc, V _{CE} = 2.0 Vdc)		10	—	
2N5887,88				
2N5889 thru 2N5901				
Collector-Emitter Saturation Voltage (I _C = 7.0 Adc, I _B = 1.4 Adc)	V _{CE(sat)}	—	0.4	Vdc
2N5887,88				
(I _C = 7.0 Adc, I _B = 700 mAdc)		—	0.4	
2N5889 thru 2N5901				
Base-Emitter On Voltage (I _C = 7.0 Adc, V _{CE} = 2.0 Vdc)	V _{BE(on)}	—	1.2	Vdc
All Types				
DYNAMIC CHARACTERISTICS				
Current-Gain—Bandwidth Product (I _C = 0.5 Adc, V _{CE} = 12 Vdc)	f _T	250	—	kHz
All Types				

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

*Indicates JEDEC Registered Data.

FIGURE 7 – ACTIVE-REGION SAFE-OPERATING AREA

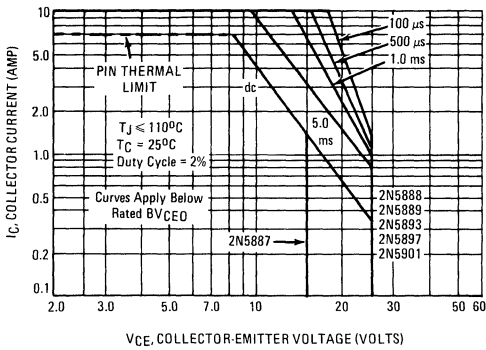


FIGURE 8 – ACTIVE-REGION SAFE-OPERATING AREA

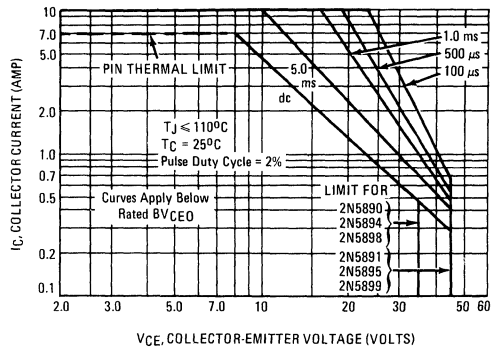


FIGURE 9 – ACTIVE-REGION SAFE-OPERATING AREA

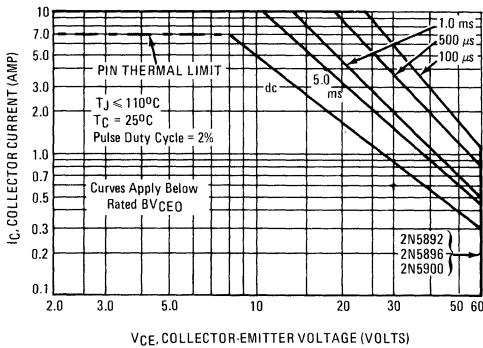


FIGURE 10 – CURRENT-GAIN-BANDWIDTH PRODUCT

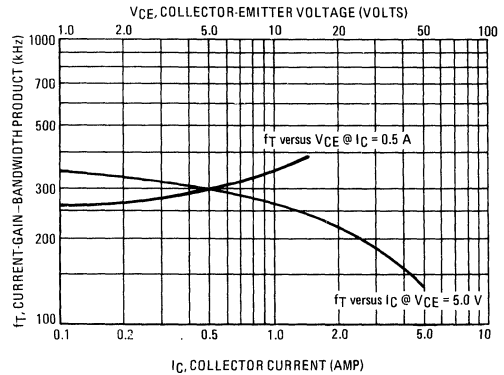


FIGURE 11 – EFFECTS OF BASE-EMITTER RESISTANCE

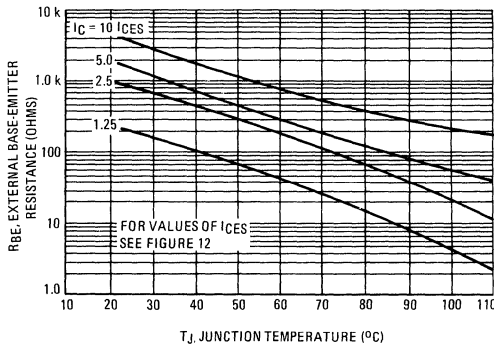


FIGURE 12 – COLLECTOR CUTOFF REGION

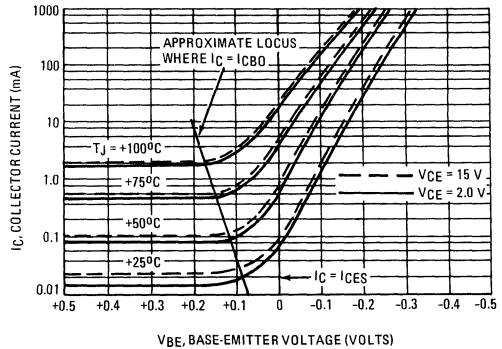


FIGURE 13 – DC CURRENT GAIN

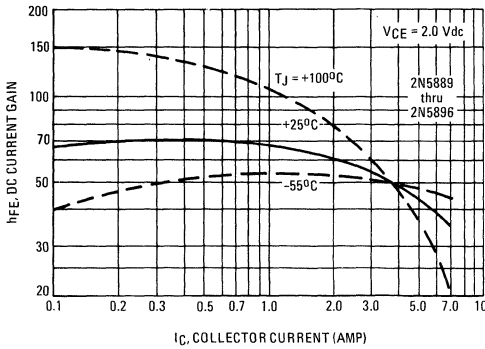


FIGURE 14 – DC CURRENT GAIN

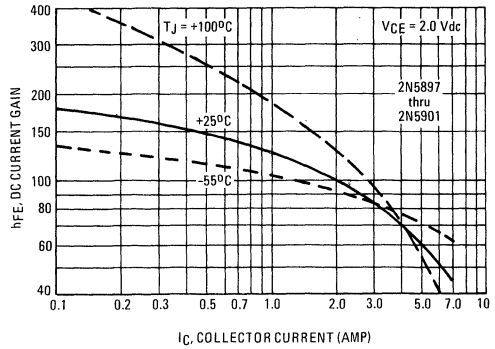


FIGURE 15 – COLLECTOR SATURATION REGION

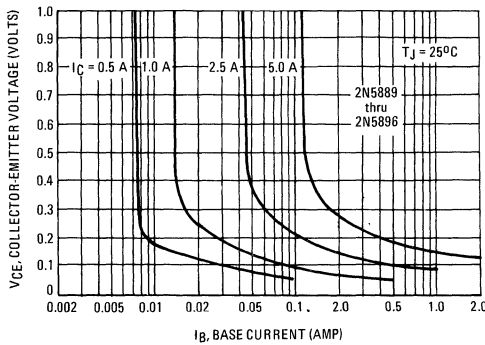


FIGURE 16 – COLLECTOR SATURATION REGION

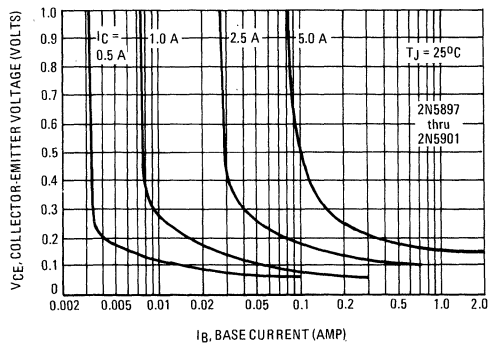


FIGURE 17 – "ON" VOLTAGES

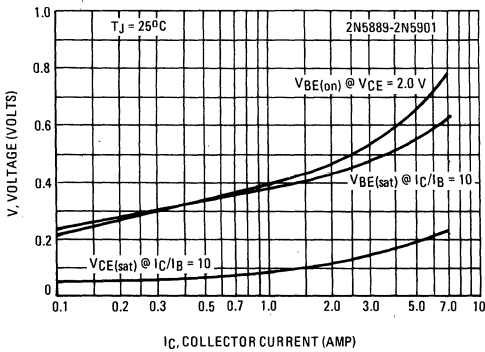


FIGURE 18 – TEMPERATURE COEFFICIENTS

