

HIGH-POWER NPN SILICON POWER TRANSISTORS

...designed for use in general-purpose amplifier and switching application .

FEATURES:

- * Recommend for 125W High Fidelity Audio Frequency Amplifier Output stage
- * Complementary to 2SA1302

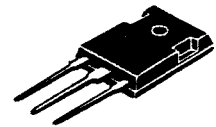
NPN
2SC3281

15 AMPERE
POWER
TRANSISTOR

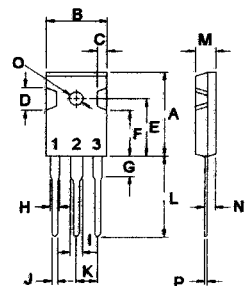
200 VOLTS
150 WATTS

MAXIMUM RATINGS

Characteristic	Symbol	2SC3281	Unit
Collector-Emitter Voltage	V_{CEO}	200	V
Collector-Base Voltage	V_{CBO}	200	V
Emitter-Base Voltage	V_{EBO}	5.0	V
Collector Current - Continuous - Peak	I_C I_{CM}	15 20	A
Base current	I_B	2.0	A
Total Power Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	150 1.2	W W/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ\text{C}$



TO-247(3P)



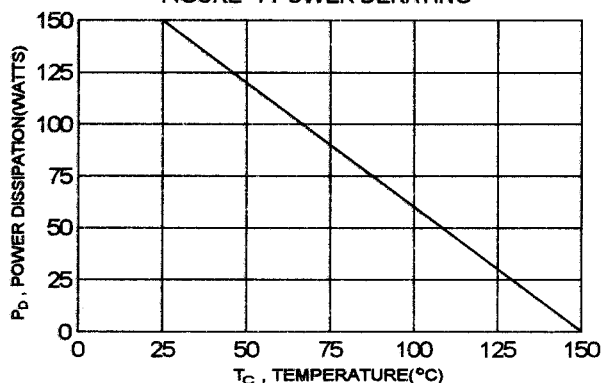
PIN 1.BASE
2.COLLECTOR
3.EMITTER

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance Junction to Case	$R_{\theta jc}$	0.83	$^\circ\text{C/W}$

DIM	MILLIMETERS	
	MIN	MAX
A	20.63	22.38
B	15.38	16.20
C	1.90	2.70
D	5.10	6.10
E	14.81	15.22
F	11.72	12.84
G	4.20	4.50
H	1.82	2.46
I	2.92	3.23
J	0.89	1.53
K	5.26	5.66
L	18.50	21.50
M	4.68	5.36
N	2.40	2.80
O	3.25	3.65
P	0.55	0.70

FIGURE -1 POWER DERATING



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

Characteristic	Symbol	Min	Max	Unit
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OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage ($I_C = 50 \text{ mA}, I_B = 0$)	$V_{(BR)CEO}$	200		V
Collector Cutoff Current ($V_{CB} = 200 \text{ V}, I_E = 0$)	I_{CBO}		50	μA
Emitter Cutoff Current ($V_{EB} = 5.0 \text{ V}, I_C = 0$)	I_{EBO}		10	μA

ON CHARACTERISTICS (1)

DC Current Gain ($I_C = 1.0 \text{ A}, V_{CE} = 5.0 \text{ V}$) * ($I_C = 8.0 \text{ A}, V_{CE} = 5.0 \text{ V}$)	$h_{FE(2)}$ h_{FE}	55 35	160	
Collector-Emitter Saturation Voltage ($I_C = 10 \text{ A}, I_B = 1.0 \text{ A}$)	$V_{CE(sat)}$		3.0	V
Base-Emitter On Voltage ($I_C = 8.0 \text{ A}, V_{CE} = 5.0 \text{ V}$)	$V_{BE(on)}$		1.5	V

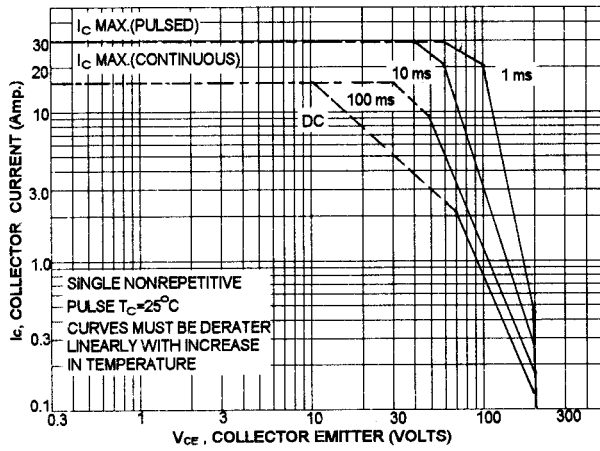
DYNAMIC CHARACTERISTICS

Current-Gain-Bandwidth Product ($I_C = 1.0 \text{ A}, V_{CE} = 5.0 \text{ V}, f = 1.0 \text{ MHz}$)	f_T	10		MHz
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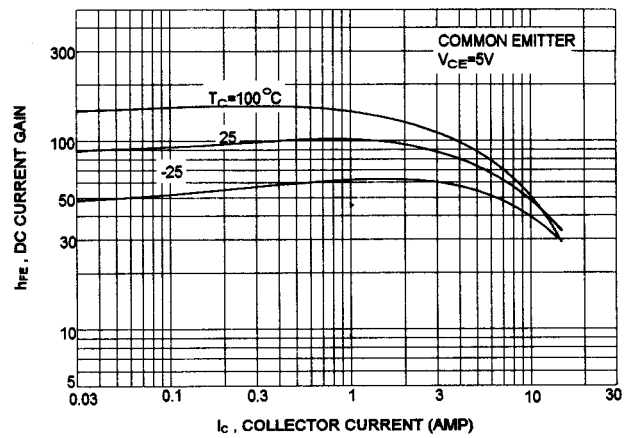
(1) Pulse Test: Pulse Width = 300 μs , Duty Cycle $\leq 2.0\%$ * $h_{FE(2)}$ Classification :

55	R	110	80	O	160
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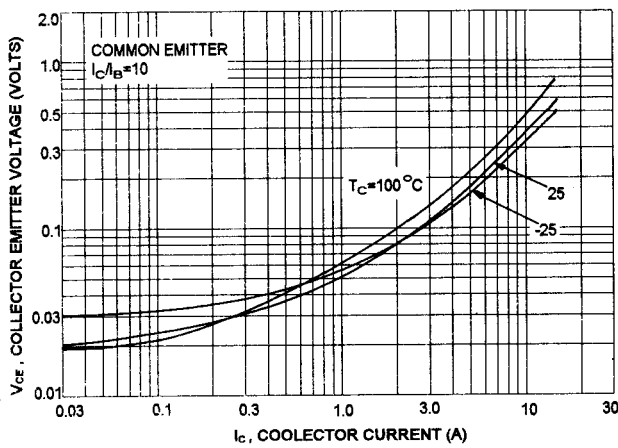
ACTIVE REGION SAFE OPERATING AREA



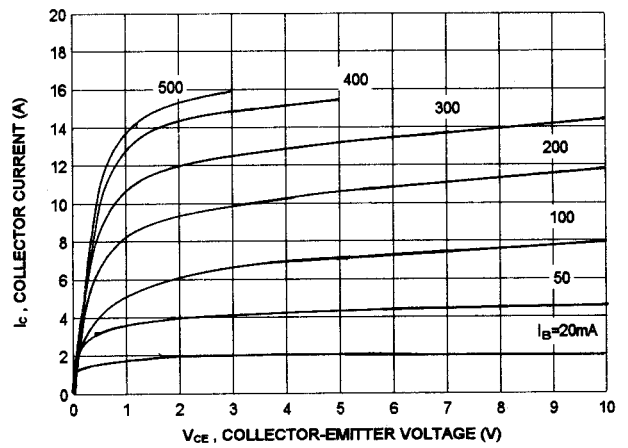
DC CURRENT GAIN



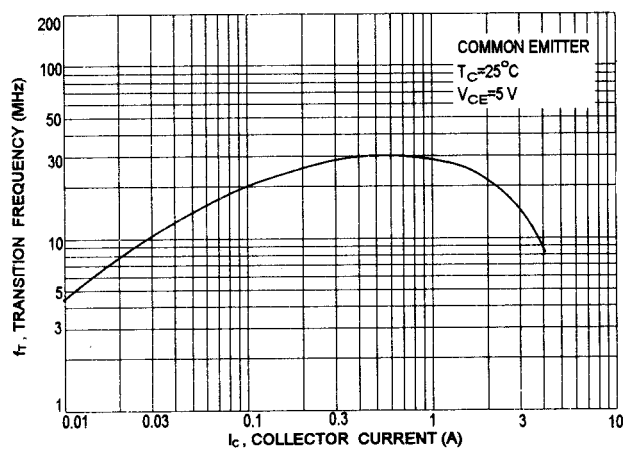
$V_{CE}(\text{sat}) - I_C$



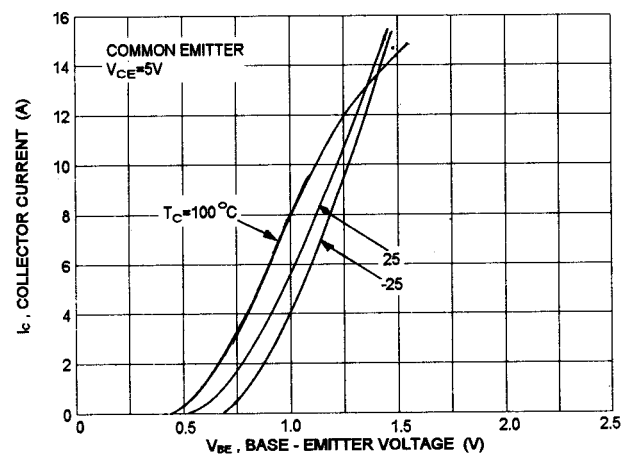
$I_C - V_{CE}$



$f_T - I_C$



$I_C - V_{BE}$



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