Pb Free Plating Product

2SD2583

NPN Silicon Epitaxial Power Transistor

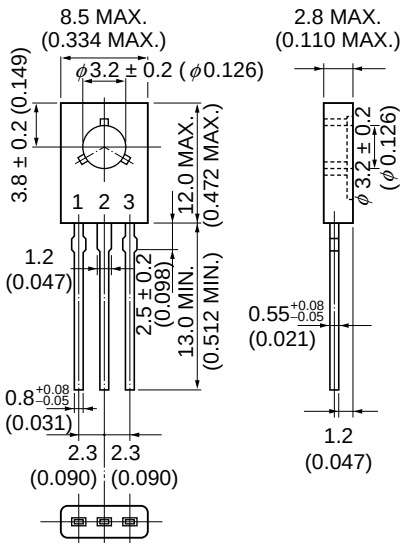
FEATURES

- Low $V_{CE(sat)}$
  $V_{CE(sat)}$ = 0.15 V Max (@I_C/I_B = 1.0 A/50 mA)
- High DC Current Gain
  h_{EF} = 150 to 600 (@V_{CE} = 2.0 V, I_C = 1.0 A)

ABSOLUTE MAXIMUM RATINGS

Maximum Voltage and Current (T_A = 25 °C)		
Collector to Base Voltage	V_{CB0}	30 V
Collector to Emitter Volteage	V_{CE0}	30 V
Emitter to Base Voltage	V_{EB0}	6.0 V
Collector Current (DC)	$I_{C(DC)}$	5.0 A
Collector Current (Pulse)*	$I_{C(Pulse)}$	10 A
Base Current (DC)	$I_{B(DC)}$	2.0A
* PW ≤ 10ms, Duty Cycle ≤ 10 %		
Maximum Power Dissipation		
Total Power Dissipation (T_C = 25 °C)	P_T	10 W
Total Power Dissipation (T_A = 25 °C)	P_T	1.0 W
Maximum Temperature		
Junction Temperature	T_j	150 °C
Storage Temperature	T_{stg}	–55 to 150 °C

PACKAGE DIMENSIONS
in millimeters (inches)

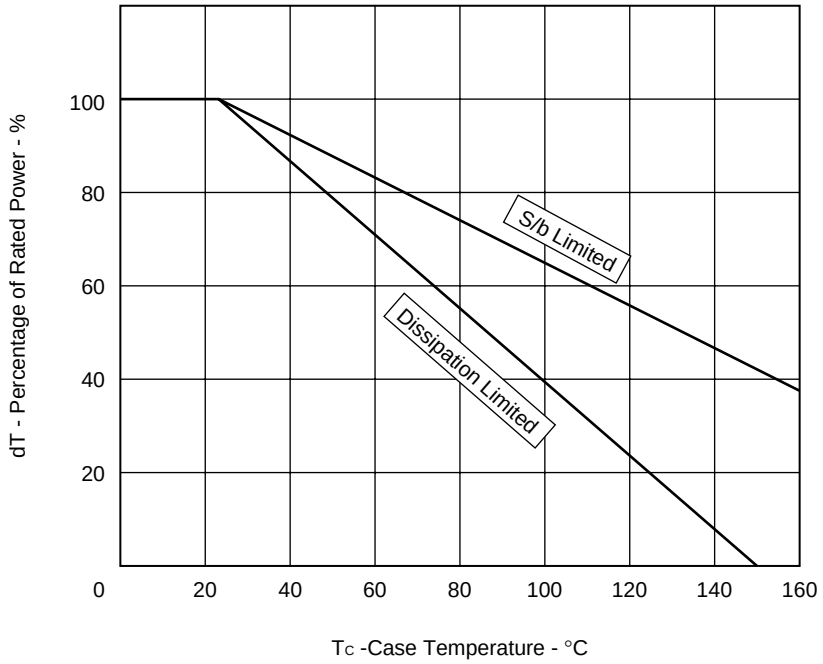


1. Emitter
2. Collector connected to mounting plane
3. Base

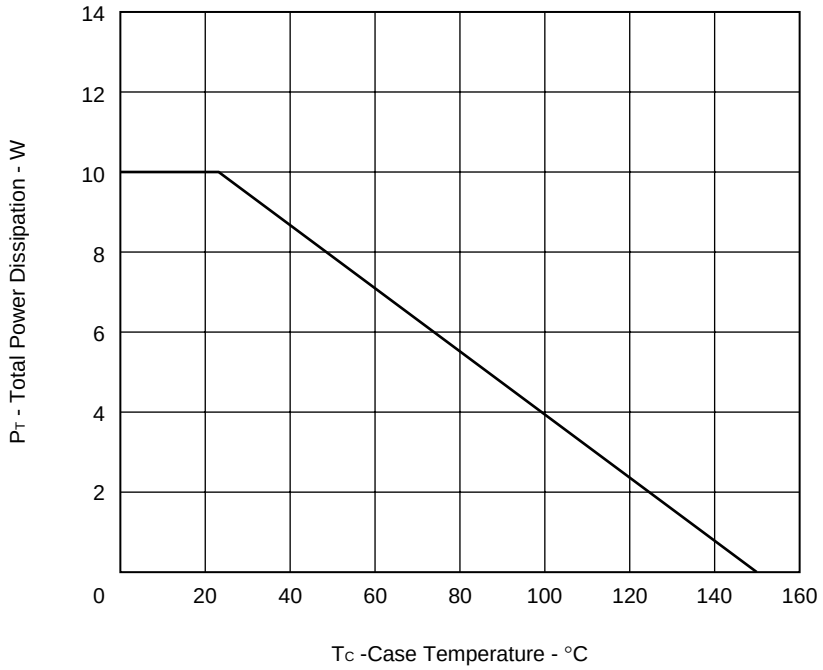
ELECTRICAL CHARACTERISTICS (T_A = 25 °C)

CHARACTERISTICS	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Collector Cutoff Currnet	I_{CB0}	V_{CB} = 30 V, I_E = 0			100	nA
Emitter Cutoff Current	I_{EB0}	V_{EB} = 6.0 V, I_C = 0			100	nA
DC Current Gain	h_{FE1}	V_{CE} = 2.0 V, I_C = 1.0 A	150		600	—
DC Current Gain	h_{FE2}	V_{CE} = 2.0 V, I_C = 4.0 A	50			—
Collector Saturation Voltage	$V_{CE(sat)1}$	I_C = 1.0 A, I_B = 50 mA		0.07	0.15	V
Collector Saturation Voltage	$V_{CE(sat)2}$	I_C = 2.0 A, I_B = 0.1 A		0.13	0.25	V
Collector Saturation Voltage	$V_{CE(sat)3}$	I_C = 4.0 A, I_B = 0.2 A		0.24	0.50	V
Base Saturation Voltage	$V_{BE(sat)}$	I_C = 2.0 A, I_B = 0.1 A		0.86	1.50	V
Gain Bandwidth Product	f_T	V_{CE} = 10 V, I_E = 50 mA		120		MHz
Output Capacitance	C_{ob}	V_{CB} = 10 V, I_E = 0, f = 1 MHz		77		pF

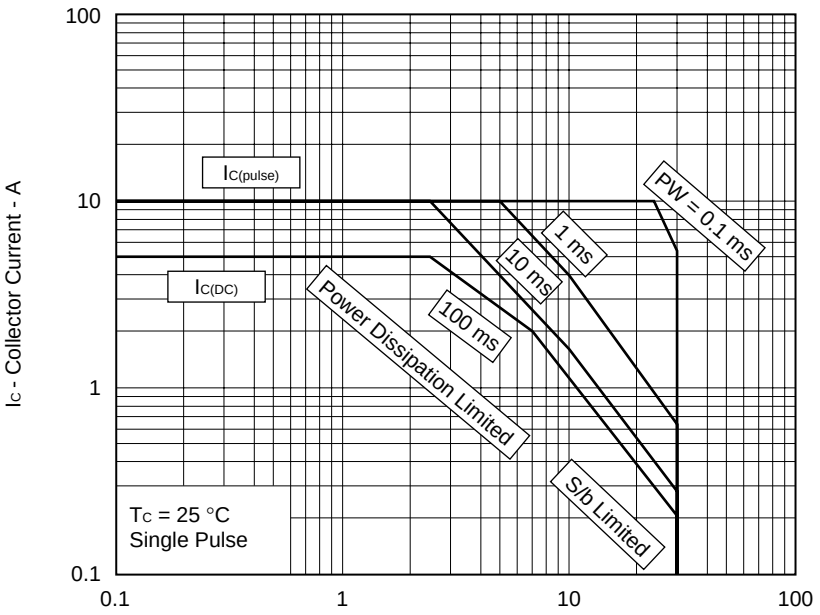
DERATING FACTOR OF FORWARD BIAS SAFE OPERATING AREA



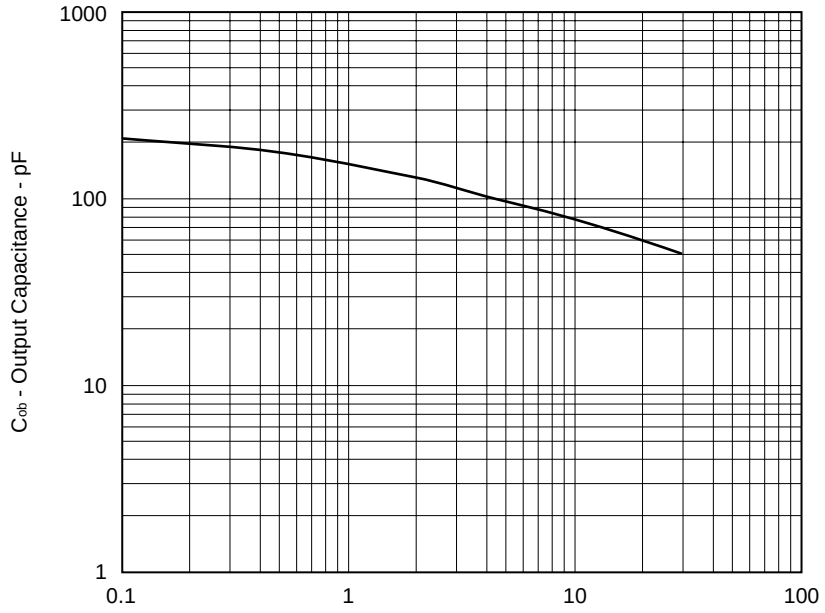
TOTAL POWER DISSIPATION vs. CASE TEMPERATURE



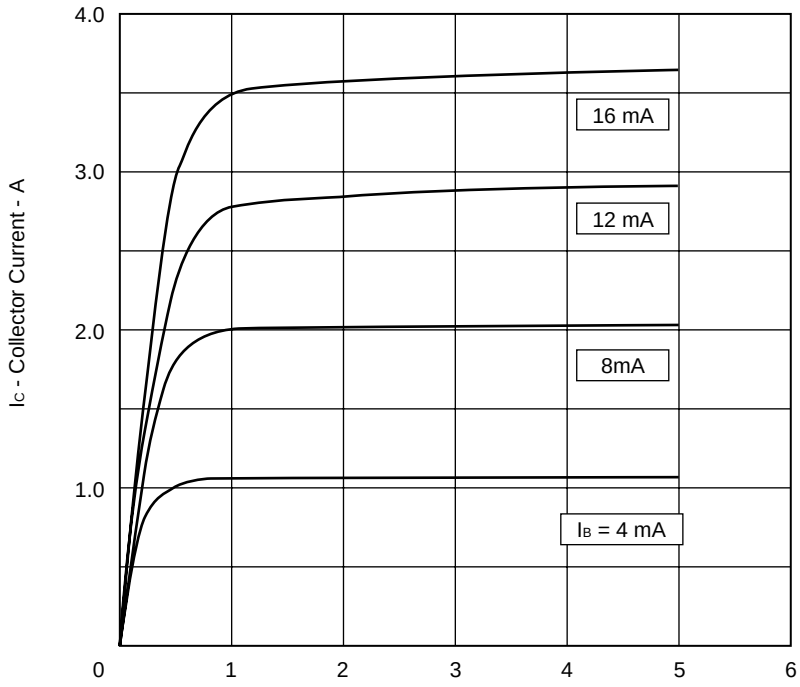
FORWARD BIAS SAFE OPERATING AREA



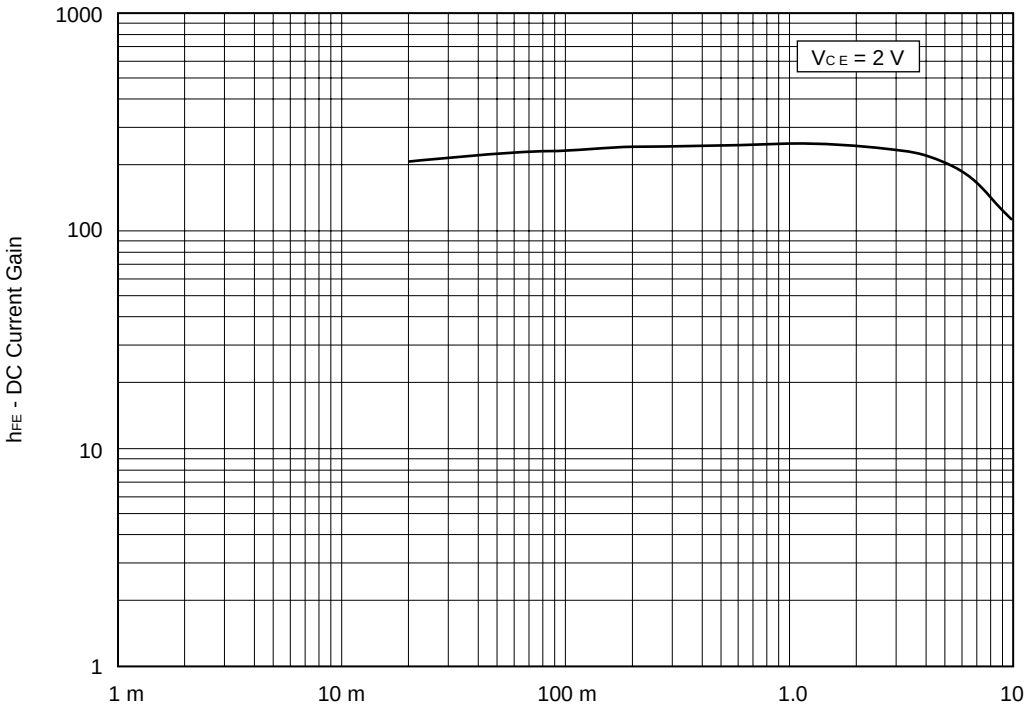
OUTPUT CAPACITANCE vs COLLECTOR TO BASE VOLTAGE



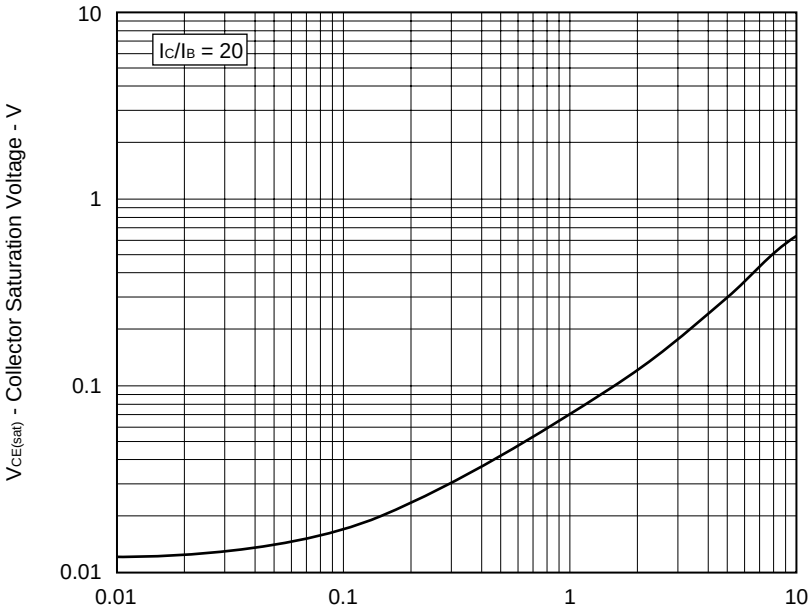
Collector to Emitter Voltage vs Collector Current



DC Current Gain vs Collector Current



COLLECTOR SATURATION VOLTAGE vs COLLECTOR CURRENT



BASE SATURATION VOLTAGE vs COLLECTOR CURRENT