

1

- 150 V Min $V_{(BR)}$ CEO
- 2-A Rated Continuous Collector Current
- 20 Watts at 100°C Case Temperature (TIP507)
- 4 Watts at 100°C Case Temperature (TIP508)
- Min f_T of 50 MHz at 5 V, 0.2 A

mechanical data



absolute maximum ratings at 25°C case temperature (unless otherwise noted)

TIP507 TIP508
 ← -150 V →
 ← -150 V →
 ← -5 V →
 ← -2 A →
 ← -3 A →
 ← -0.6 A →
 See Figure 1
 20 W 4 W
 2 W 1 W
 -65°C to 200°C
 -65°C to 200°C
 ← 300°C →

NOTES: 1. This value applies when the base-emitter diode is open-circuited.
2. This value applies for $t_w \leq 0.3$ ms, duty cycle $\leq 10\%$.
3. Derate linearly to 200°C case temperature at the rate of $200\text{ mW}/^\circ\text{C}$ for TIP507 and $40\text{ mW}/^\circ\text{C}$ for TIP508.
4. Derate linearly to 200°C free-air temperature at the rate of $11.4\text{ mW}/^\circ\text{C}$ for TIP507 and $5.7\text{ mW}/^\circ\text{C}$ for TIP508.

TYPES TIP507, TIP508

P-N-P SILICON POWER TRANSISTORS

electrical characteristics at 25°C case temperature (unless otherwise noted)

PARAMETER	TEST CONDITIONS	MIN	MAX	UNIT
$V_{(BR)CEO}$ Collector-Emitter Breakdown Voltage	$I_C = -30 \text{ mA}$, $I_B = 0$, See Note 5	-150		V
I_{CEO} Collector Cutoff Current	$V_{CE} = -75 \text{ V}$, $I_B = 0$		-200	μA
I_{CES} Collector Cutoff Current	$V_{CE} = -150 \text{ V}$, $V_{BE} = 0$		-1	mA
	$V_{CE} = -75 \text{ V}$, $V_{BE} = 0$, $T_C = 150^\circ\text{C}$		-2	
I_{EBQ} Emitter Cutoff Current	$V_{EB} = -2.5 \text{ V}$, $I_C = 0$		-100	μA
	$V_{EB} = -5 \text{ V}$, $I_C = 0$		-1	
h_{FE} Static Forward Current Transfer Ratio	$V_{CE} = -4 \text{ V}$, $I_C = -1 \text{ A}$, See Notes 5 and 6	30	120	
	$V_{CE} = -4 \text{ V}$, $I_C = -2 \text{ A}$, See Notes 5 and 6	10		
V_{BE} Base-Emitter Voltage	$V_{CE} = -4 \text{ V}$, $I_C = -2 \text{ A}$, See Notes 5 and 6		-1.5	V
$V_{CE(sat)}$ Collector-Emitter Saturation Voltage	$I_B = -0.1 \text{ A}$, $I_C = -1 \text{ A}$, See Notes 5 and 6		-1	V
	$I_B = -0.4 \text{ A}$, $I_C = -2 \text{ A}$, See Notes 5 and 6		-1.5	
h_{fe} Small-Signal Common-Emitter Forward Current Transfer Ratio	$V_{CE} = -5 \text{ V}$, $I_C = -0.2 \text{ A}$, $f = 1 \text{ kHz}$	30		
$ h_{fe} $ Small-Signal Common-Emitter Forward Current Transfer Ratio	$V_{CE} = -5 \text{ V}$, $I_C = -0.2 \text{ A}$, $f = 5 \text{ MHz}$	10		

NOTES: 5. These parameters must be measured using pulse techniques. $t_w = 300 \mu\text{s}$, duty cycle $\leq 2\%$.

6. These parameters are measured with voltage-sensing contacts separate from the current-carrying contacts and located within 0.125 inch from the device body.

thermal characteristics

PARAMETER	TIP507	TIP508	UNIT
	MAX	MAX	
$R_{\theta JC}$ Junction-to-Case Thermal Resistance	5	25	$^\circ\text{C/W}$
$R_{\theta JA}$ Junction-to-Free-Air Thermal Resistance	87.5	175	

MAXIMUM SAFE OPERATING AREA

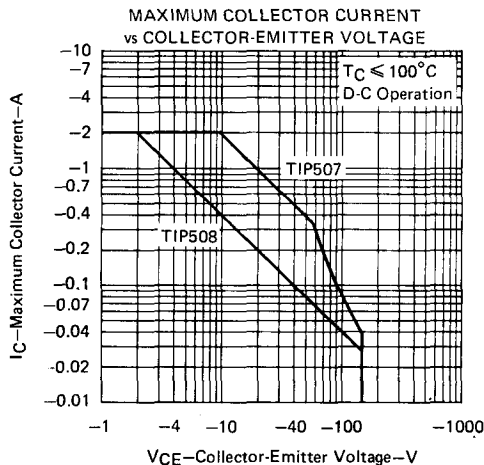


FIGURE 1