

TYPES T11131, T11132, T11133, T11134, T11135, T11136 N-P-N TRIPLE-DIFFUSED MESA SILICON TRANSISTORS

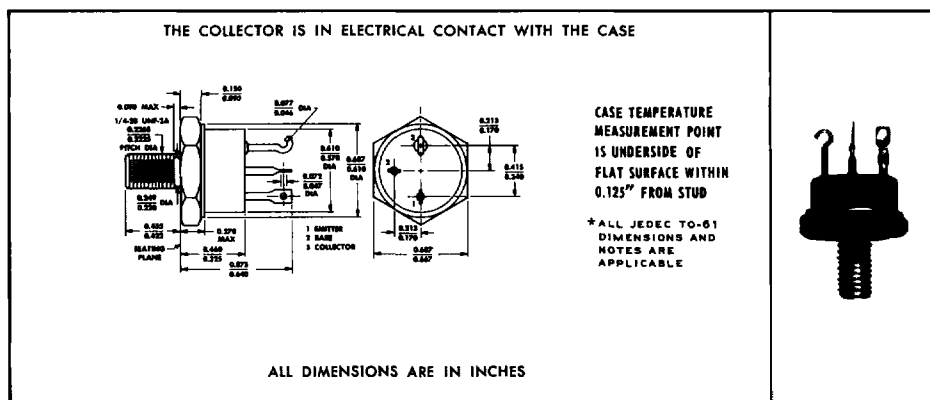
TYPES T11131, T11132, T11133, T11134, T11135, T11136
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HIGH-VOLTAGE, HIGH-FREQUENCY POWER TRANSISTORS FOR INDUSTRIAL APPLICATIONS

- 80 Watts at 55°C Case Temperature
- Maximum r_{CS} of 0.5 Ohm at 2 Amperes I_C
- Maximum V_{BE} of 2 Volts at 2 Amperes I_C
- Minimum f_T of 7.5 Megacycles

mechanical data

The transistors are in hermetically-sealed welded packages.



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

	T11131	T11133	T11135
	T11132	T11134	T11136
Collector-Base Voltage	200 v	150 v	100 v
Collector-Emitter Voltage (See Note 1)	100 v	75 v	50 v
Emitter-Base Voltage	← 8 v →		
Collector Current, Continuous	← 7.5 a →		
Emitter Current, Continuous	← 7.5 a →		
Safe Continuous Operating Region at (or below) 55°C Case Temperature	See Figure 1		
Total Device Dissipation at (or below) 25°C Free-Air Temperature (See Note 2)	← 3 w →		
Total Device Dissipation at (or below) 55°C Case Temperature (See Note 3)	← 80 w →		
Operating Collector Junction Temperature	← 175°C →		
Storage Temperature Range	-65°C to +200°C		

- NOTES: 1. This value applies when base-emitter diode is open-circuited.
 2. Derate linearly to 175°C free-air temperature at the rate of 20 mw/°C.
 3. Derate linearly to 175°C case temperature at the rate of 0.67 w/°C.

TYPES TI 1131, TI 1132, TI 1133, TI 1134, TI 1135, TI 1136

N-P-N TRIPLE-DIFFUSED MESA SILICON TRANSISTORS

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

PARAMETER	TEST CONDITIONS	TYPE	MIN	MAX	UNIT
BV_{CBO} Collector-Base Breakdown Voltage	$I_C = 10 \text{ ma}$, $I_E = 0$	TI1131, TI1132	200		v
		TI1133, TI1134	150		v
		TI1135, TI1136	100		v
BV_{CEO} Collector-Emitter Breakdown Voltage	$I_C = 0.2 \text{ a}$, $I_B = 0$, (See Note 4)	TI1131, TI1132	100		v
		TI1133, TI1134	75		v
		TI1135, TI1136	50		v
I_{CES} Collector Cutoff Current	$V_{CE} = 30 \text{ v}$, $V_{BE} = 0$	All		100	μa
	$V_{CE} = 100 \text{ v}$, $V_{BE} = 0$, $T_C = 150^\circ\text{C}$	TI1131, TI1132		10	ma
	$V_{CE} = 75 \text{ v}$, $V_{BE} = 0$, $T_C = 150^\circ\text{C}$	TI1133, TI1134		10	ma
	$V_{CE} = 50 \text{ v}$, $V_{BE} = 0$, $T_C = 150^\circ\text{C}$	TI1135, TI1136		10	ma
I_{EBO} Emitter Cutoff Current	$V_{EB} = 8 \text{ v}$, $I_C = 0$	All		1.0	ma
h_{FE} Static Forward Current Transfer Ratio	$V_{CE} = 4 \text{ v}$, $I_C = 2.0 \text{ a}$, (See Note 4)	TI1131, TI1133 TI1135	30	120	
		TI1132, TI1134 TI1136	15	60	
V_{BE} Base-Emitter Voltage	$I_B = 0.20 \text{ a}$, $I_C = 2.0 \text{ a}$, (See Note 4)	All		2.0	v
$r_{CE(sat)}$ Static Collector-Emitter Saturation Resistance	$I_B = 0.20 \text{ a}$, $I_C = 2.0 \text{ a}$, (See Note 4)	All		0.5	ohm
$ h_{fe} $ Small-Signal Common-Emitter Forward Current Transfer Ratio	$V_{CE} = 15 \text{ v}$, $I_C = 0.5 \text{ a}$, $f = 7.5 \text{ mc}$, (See Note 5)	All	1.0		
C_{ob} Common-Base Open-Circuit Output Capacitance	$V_{CB} = 15 \text{ v}$, $I_E = 0$ $f = 1.0 \text{ mc}$	All		550	pf

NOTES: 4. These parameters must be measured using pulse techniques. $PW = 300 \mu\text{sec}$, Duty Cycle $\leq 2\%$.

5. If tested without a heat sink, DC collector current must not be applied longer than 5 seconds.

thermal characteristics

PARAMETER	TYPE	MIN	MAX	UNIT
θ_{J-C} Junction-to-Case Thermal Resistance	All		1.5	$^\circ\text{C}/\text{w}$
θ_{J-A} Junction-to-Free-Air Thermal Resistance	All		50	$^\circ\text{C}/\text{w}$

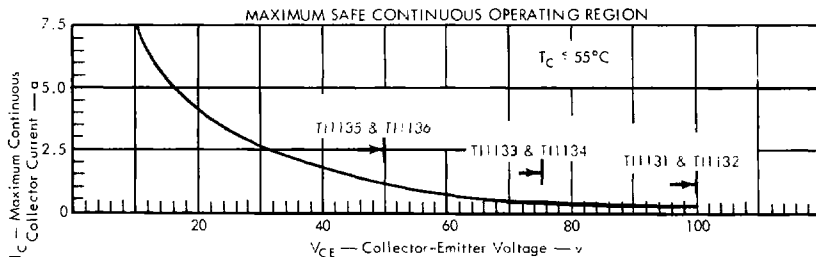


Figure 1