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2N3847
N-P-N SILICON POWER TRANSISTOR

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

	2N3847
Collector-Base Voltage	400 V
Collector-Emitter Voltage (See Note 1)	300 V
Emitter-Base Voltage	10 V
Continuous Collector Current	20 A
Continuous Base Current	10 A
Safe Operating Region at (or below) 100°C Case Temperature	See Figure 7
Continuous Device Dissipation at (or below) 100°C Case Temperature (See Note 2)	150 W
Continuous Device Dissipation at (or below) 25°C Free-Air Temperature (See Note 3)	4 W
Operating Case Temperature Range	−65°C to 175°C
Storage Temperature Range	−65°C to 200°C
Terminal Temperature ⅛ Inch from Case for 10 Seconds	260°C

NOTES: 1. These values apply when the base-emitter diode is open-circuited.
2. Derate linearly to 175°C case temperature at the rate of 2 W/deg.
3. Derate linearly to 175°C free-air temperature at the rate of 26.6 mW/deg.

*Indicates JEDEC registered data

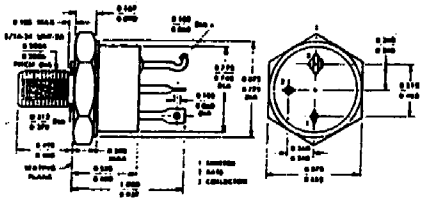
***electrical characteristics at 25°C case temperature (unless otherwise noted)**

PARAMETER		TEST CONDITIONS	2N3847 MIN	2N3847 MAX	UNIT
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	I_C = 200 mA, I_B = 0, See Note 4	300		V
I_{CEO}	Collector Cutoff Current	V_{CE} = 200 V, I_B = 0			mA
		V_{CE} = 300 V, I_B = 0		5	
I_{CES}	Collector Cutoff Current	V_{CE} = 300 V, V_{BE} = 0			mA
		V_{CE} = 400 V, V_{BE} = 0		2	
		V_{CE} = 300 V, V_{BE} = 0, T_C = 150°C			
		V_{CE} = 400 V, V_{BE} = 0, T_C = 150°C		10	
I_{EBO}	Emitter Cutoff Current	V_{EB} = 10 V, I_C = 0		250	μA
h_{FE}	Static Forward Current Transfer Ratio	V_{CE} = 3 V, I_C = 5 A, See Notes 4 and 5	40	200	
		V_{CE} = 3 V, I_C = 10 A, See Notes 4 and 5	10	60	
		V_{CE} = 3 V, I_C = 10 A, T_C = −55°C, See Notes 4 and 5	10		
V_{BE}	Base-Emitter Voltage	V_{CE} = 3 V, I_C = 10 A, See Notes 4 and 5		1.2	V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	I_B = 1.6 A, I_C = 10 A, See Notes 4 and 5		0.75	V
h_{fe}	Small-Signal Common-Emitter Forward Current Transfer Ratio	V_{CE} = 10 V, I_C = 5 A, f = 1 kHz	50	250	
$\|h_{fe}\|$	Small-Signal Common-Emitter Forward Current Transfer Ratio	V_{CE} = 10 V, I_C = 1 A, f = 1 MHz	10		
C_{obo}	Common-Base Open-Circuit Output Capacitance	V_{CB} = 10 V, I_E = 0, f = 1 MHz		750	pF

NOTES: 4. These parameters must be measured using pulse techniques. t_p = 300 μs, duty cycle ≤ 2%.
5. These parameters are measured with voltage-sensing contacts separate from the current-carrying contacts.

Quality Semi-Conductors

THE COLLECTOR IS IN ELECTRICAL CONTACT WITH THE CASE



ALL JEDEC TO-63 DIMENSIONS AND NOTES ARE APPLICABLE

CASE TEMPERATURE MEASUREMENT POINT IS UNDERSIDE OF FLAT SURFACE WITHIN 0.125" FROM STUD

ALL DIMENSIONS ARE IN INCHES