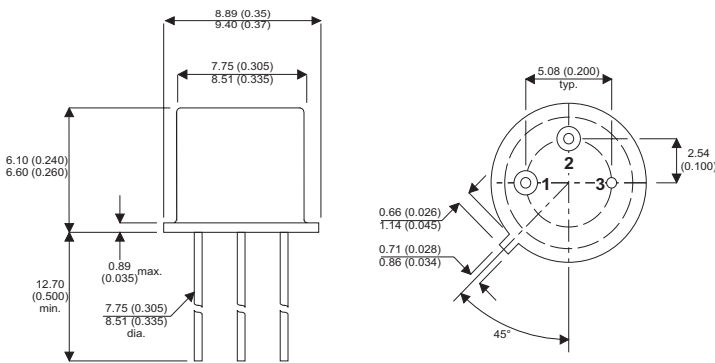


**MECHANICAL DATA**

Dimensions in mm (inches)



**HIGH VOLTAGE, HIGH CURRENT  
SILICON EXPITAXIAL PLANAR  
NPN TRANSISTOR**

**APPLICATIONS**

**Intended for High Voltage, High Current,  
Switching Applications up to 7A.**

**TO-39 PACKAGE**

Pin 1 – Emitter      Pin 2 – Base      Pin 3 – Collector

**ABSOLUTE MAXIMUM RATINGS** ( $T_{case} = 25^{\circ}C$  unless otherwise stated)

			<b>BUY47</b>	<b>BUY48</b>
$V_{CBO}$	Collector – Base Voltage	( $I_E = 0$ )	150V	200V
$V_{CEO}$	Collector – Emitter Voltage	( $I_B = 0$ )	120V	170V
$V_{EBO}$	Emitter – Base Voltage	( $I_C = 0$ )		6V
$I_C$	Collector Current			7A
$I_{CM}$	Peak Collector Current (repetitive)			10A
$P_{tot}$	Total Power Dissipation	@ $T_{amb} \leq 25^{\circ}C$		1W
		@ $T_{case} \leq 50^{\circ}C$		10W
$T_{STG}$	Storage Temperature Range			-65 to +200°C
$T_J$	Maximum Operating Junction Temperature			200°C

**ELECTRICAL CHARACTERISTICS**

 (T<sub>case</sub> = 25°C unless otherwise stated)

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I <sub>CBO</sub> Collector Cut-off Current	V <sub>CB</sub> = 80V	<b>BUY47</b>		10	μA
	I <sub>E</sub> = 0	T <sub>C</sub> = 125°C		1	mA
	V <sub>CB</sub> = 100V	<b>BUY48</b>		10	μA
	I <sub>E</sub> = 0	T <sub>C</sub> = 125°C		1	mA
V <sub>(BR)CBO</sub> * Collector – Base Breakdown Voltage	I <sub>C</sub> = 1mA	<b>BUY47</b>		150	V
	I <sub>E</sub> = 0	<b>BUY48</b>		200	
V <sub>CEO(sus)</sub> * Collector – Emitter Sustaining Voltage	I <sub>C</sub> = 20mA	<b>BUY47</b>		120	V
	I <sub>B</sub> = 0	<b>BUY48</b>		170	
V <sub>EBO</sub> * Emitter – Base Voltage	I <sub>E</sub> = 1mA	I <sub>C</sub> = 0	6		V
V <sub>CE(sat)</sub> * Collector – Emitter Saturation Voltage	I <sub>C</sub> = 0.5A	I <sub>B</sub> = 50mA	0.05		V
	I <sub>C</sub> = 2A	I <sub>B</sub> = 0.2A	0.45		
	I <sub>C</sub> = 5A	I <sub>B</sub> = 0.5A	1		
V <sub>BE(sat)</sub> * Base – Emitter Saturation Voltage	I <sub>C</sub> = 0.5A	I <sub>B</sub> = 50mA	0.8		V
	I <sub>C</sub> = 2A	I <sub>B</sub> = 0.2A	1.1		
	I <sub>C</sub> = 5A	I <sub>B</sub> = 0.5A	1.5		
h <sub>FE</sub> * DC Current Gain	I <sub>C</sub> = 50mA	V <sub>CE</sub> = 5V	130		—
	I <sub>C</sub> = 0.5A	V <sub>CE</sub> = 5V	40	150	
	I <sub>C</sub> = 2A	V <sub>CE</sub> = 5V	40	130	
	I <sub>C</sub> = 5A	V <sub>CE</sub> = 5V	15	45	
f <sub>T</sub> Transition Frequency	I <sub>C</sub> = 100mA	V <sub>CE</sub> = 10V	90		MHz
C <sub>CBO</sub> Collector – Base Capacitance	I <sub>E</sub> = 0	V <sub>CB</sub> = 50V	45		pF
	f = 1MHz	80			
t <sub>on</sub> Turn-On Time	I <sub>C</sub> = 5A	V <sub>CC</sub> = 40V	1		μs
t <sub>off</sub> Fall Time	I <sub>B1</sub> = -I <sub>B2</sub> = 0.5A	2			

**NOTES**

 \* Pulse Test: t<sub>p</sub> = 300μs, δ = 1.5%