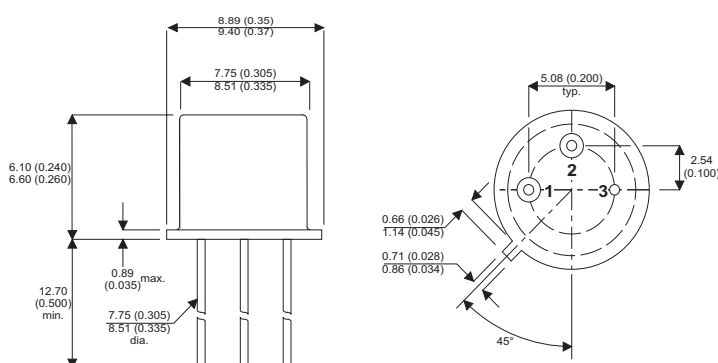


MECHANICAL DATA

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°C unless otherwise stated)

			BUY47	BUY48
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} ≤ 25°C		1W
		@T _{case} ≤ 50°C		10W
T _{STG}	Storage Temperature Range			–65 to +200°C
T _J	Maximum Operating Junction Temperature			200°C

ELECTRICAL CHARACTERISTICS

($T_{\text{case}} = 25^{\circ}\text{C}$ unless otherwise stated)

Parameter	Test Conditions		Min.	Typ.	Max.	Unit
I_{CBO} Collector Cut-off Current	$V_{\text{CB}} = 80\text{V}$	BUY47			10	μA
	$I_{\text{E}} = 0$	$T_{\text{C}} = 125^{\circ}\text{C}$			1	mA
	$V_{\text{CB}} = 100\text{V}$	BUY48			10	μA
	$I_{\text{E}} = 0$	$T_{\text{C}} = 125^{\circ}\text{C}$			1	mA
$V_{(\text{BR})\text{CBO}^*}$ Collector – Base Breakdown Voltage	$I_{\text{C}} = 1\text{mA}$	BUY47	150			V
	$I_{\text{E}} = 0$	BUY48	200			
$V_{\text{CEO(sus)}^*}$ Collector – Emitter Sustaining Voltage	$I_{\text{C}} = 20\text{mA}$	BUY47	120			V
	$I_{\text{B}} = 0$	BUY48	170			
V_{EBO^*} Emitter – Base Voltage	$I_{\text{E}} = 1\text{mA}$	$I_{\text{C}} = 0$	6			V
$V_{\text{CE(sat)}^*}$ Collector – Emitter Saturation Voltage	$I_{\text{C}} = 0.5\text{A}$	$I_{\text{B}} = 50\text{mA}$		0.05		V
	$I_{\text{C}} = 2\text{A}$	$I_{\text{B}} = 0.2\text{A}$			0.45	
	$I_{\text{C}} = 5\text{A}$	$I_{\text{B}} = 0.5\text{A}$			1	
$V_{\text{BE(sat)}^*}$ Base – Emitter Saturation Voltage	$I_{\text{C}} = 0.5\text{A}$	$I_{\text{B}} = 50\text{mA}$		0.8		V
	$I_{\text{C}} = 2\text{A}$	$I_{\text{B}} = 0.2\text{A}$			1.1	
	$I_{\text{C}} = 5\text{A}$	$I_{\text{B}} = 0.5\text{A}$			1.5	
h_{FE}^* DC Current Gain	$I_{\text{C}} = 50\text{mA}$	$V_{\text{CE}} = 5\text{V}$		130		—
	$I_{\text{C}} = 0.5\text{A}$	$V_{\text{CE}} = 5\text{V}$	40	150		
	$I_{\text{C}} = 2\text{A}$	$V_{\text{CE}} = 5\text{V}$	40	130		
	$I_{\text{C}} = 5\text{A}$	$V_{\text{CE}} = 5\text{V}$	15	45		
f_{T} Transition Frequency	$I_{\text{C}} = 100\text{mA}$	$V_{\text{CE}} = 10\text{V}$		90		MHz
C_{CBO} Collector – Base Capacitance	$I_{\text{E}} = 0$ $f = 1\text{MHz}$	$V_{\text{CB}} = 50\text{V}$		45	80	pF
t_{on} Turn-On Time	$I_{\text{C}} = 5\text{A}$	$V_{\text{CC}} = 40\text{V}$			1	μs
t_{off} Fall Time	$I_{\text{B1}} = -I_{\text{B2}} = 0.5\text{A}$				2	

NOTES

* Pulse Test: $t_{\text{p}} = 300\mu\text{s}$, $\delta = 1.5\%$