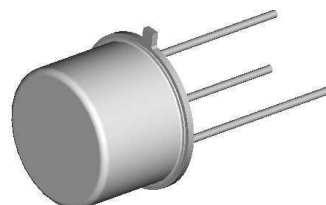


HIGH VOLTAGE, HIGH CURRENT NPN TRANSISTOR

BUY47, BUY48

- Hermetic TO39 (TO-205AD) Metal Package.
- High Voltage
- High Current
- Screening Options Available



ABSOLUTE MAXIMUM RATINGS ($T_C = 25^\circ\text{C}$ unless otherwise stated)

		BUY47	BUY48
V_{CBO}	Collector – Base Voltage	150V	200V
V_{CEO}	Collector – Emitter Voltage	120V	170V
V_{EBO}	Emitter – Base Voltage	6V	
I_C	Collector Current	7A	
I_{CM}	Peak Collector Current (repetitive)	10A	
P_D	Total Power Dissipation at $T_A = 25^\circ\text{C}$	1.0W	
	Derate Above 25°C	5.71mW/ $^\circ\text{C}$	
P_D	Total Power Dissipation at $T_C = 25^\circ\text{C}$	10W	
	Derate Above 25°C	57.1mW/ $^\circ\text{C}$	
T_J	Junction Temperature Range	-65 to $+200^\circ\text{C}$	
T_{stg}	Storage Temperature Range	-65 to $+200^\circ\text{C}$	

THERMAL PROPERTIES

Symbols	Parameters	Max.	Units
$R_{\theta JA}$	Thermal Resistance, Junction To Ambient	175	$^\circ\text{C/W}$
$R_{\theta JC}$	Thermal Resistance, Junction To Case	17.5	$^\circ\text{C/W}$

Semelab Limited reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by Semelab is believed to be both accurate and reliable at the time of going to press. However Semelab assumes no responsibility for any errors or omissions discovered in its use. Semelab encourages customers to verify that datasheets are current before placing orders.

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ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$ unless otherwise stated)

Symbols	Parameters	Test Conditions	Min.	Typ.	Max.	Units
I_{CBO}	Collector Cut-Off Current	$V_{CB} = 80\text{V}$ BUY47			10	μA
		$I_E = 0$ $T_C = 125^\circ\text{C}$			1.0	mA
		$V_{CB} = 100\text{V}$ BUY48			10	μA
		$I_E = 0$ $T_C = 125^\circ\text{C}$			1.0	mA
$V_{(BR)CBO}^{(1)}$	Collector-Base Breakdown Voltage	$I_C = 1.0\text{mA}$ BUY47	150			V
		$I_E = 0$ BUY48	200			
$V_{CEO}^{(1)}$	Collector-Emitter Breakdown	$I_C = 20\text{mA}$ BUY47	120			
		$I_B = 0$ BUY48	170			
$V_{(BR)EBO}^{(1)}$	Emitter-Base Breakdown Voltage	$I_E = 1.0\text{mA}$ $I_C = 0$	6			
$V_{CE(sat)}^{(1)}$	Collector-Emitter Saturation Voltage	$I_C = 0.5\text{A}$ $I_B = 50\text{mA}$		0.05		
		$I_C = 2\text{A}$ $I_B = 0.2\text{A}$			0.45	
		$I_C = 5\text{A}$ $I_B = 0.5\text{A}$			1.0	
$V_{BE(sat)}^{(1)}$	Base-Emitter Saturation Voltage	$I_C = 0.5\text{A}$ $I_B = 50\text{mA}$		0.8		
		$I_C = 2\text{A}$ $I_B = 0.2\text{A}$			1.1	
		$I_C = 5\text{A}$ $I_B = 0.5\text{A}$			1.5	
$h_{FE}^{(1)}$	Forward-current transfer ratio	$I_C = 50\text{mA}$ $V_{CE} = 5\text{V}$		130		-
		$I_C = 0.5\text{A}$ $V_{CE} = 5\text{V}$	40	150		
		$I_C = 2\text{A}$ $V_{CE} = 5\text{V}$	40	130		
		$I_C = 5\text{A}$ $V_{CE} = 5\text{V}$	15	45		

DYNAMIC CHARACTERISTICS

f_T	Transition Frequency	$I_C = 100\text{mA}$ $V_{CE} = 10\text{V}$ $f = 10\text{MHz}$		34		MHz
C_{obo}	Output Capacitance	$V_{CB} = 50\text{V}$ $I_E = 0$ $f = 1.0\text{MHz}$		45	80	pF
t_{on}	Turn – on Time	$I_C = 5\text{A}$ $V_{CC} = 40\text{V}$			1.0	μs
t_{off}	Turn – off time	$I_{B1} = I_{B1} - I_{B2} = 0.5\text{A}$			2	

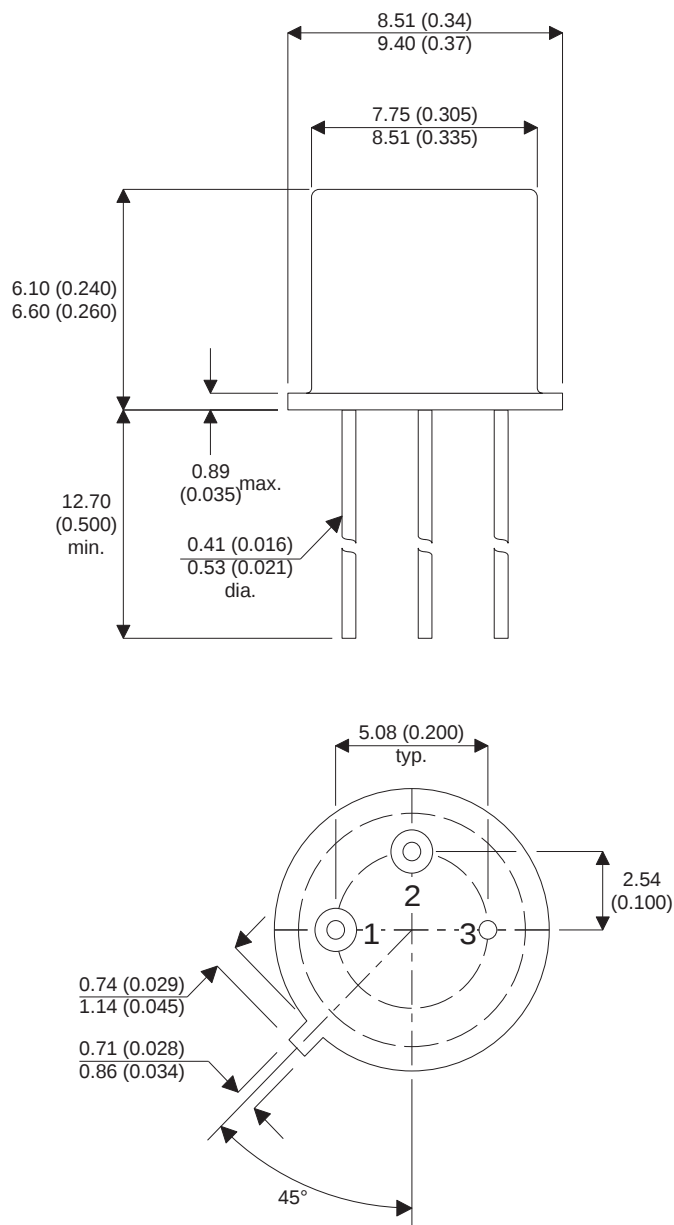
Notes

(1) Pulse Width $\leq 380\mu\text{s}$, $\delta \leq 2\%$

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MECHANICAL DATA

Dimensions in mm (inches)



TO39 (TO-205AD)
Underside View

Pin 1
Emitter

Pin 2
Base

Pin 3
Collector