

20 STERN AVE.  
SPRINGFIELD, NEW JERSEY 07081  
U.S.A.

**BUV48**  
**BUV48A**

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**MAXIMUM RATINGS**

Rating	Symbol	BUV48	BUV48A	Unit
Collector-Emitter Voltage	$V_{CE0(usc)}$	400	450	Vdc
Collector-Emitter Voltage ( $V_{BE} = -1.5V$ )	$V_{CEX}$	850	1000	Vdc
Emitter Base Voltage	$V_{EB}$	7		Vdc
Collector Current — Continuous	$I_C$	15		Adc
— Peak (1)	$I_{CM}$	30		
— Overload	$I_{OI}$	60		
Base Current — Continuous	$I_B$	5		Adc
— Peak (1)	$I_{BM}$	20		
Total Power Dissipation — $T_C = 25^\circ C$	$P_D$	150		Watts
— $T_C = 100^\circ C$		75		
Derate above $25^\circ C$		1		W/°C
Operating and Storage Junction Temperature Range	$T_J, T_{sig}$	-65 to +175		°C

**THERMAL CHARACTERISTICS**

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	1	°C/W
Maximum Lead Temperature for Soldering Purposes: 1/8" from Case for 5 Seconds	$T_L$	275	°C

(1) Pulse Test: Pulse Width = 5 ms, Duty Cycle ≤ 10%.

**ELECTRICAL CHARACTERISTICS** ( $T_C = 25^\circ C$  unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
<b>OFF CHARACTERISTICS (1)</b>					
Collector-Emitter Sustaining Voltage (Table 1) ( $I_C = 200 mA, I_B = 0, L = 25 mH$ )	BUV48 BUV48A	$V_{CE0(usc)}$	400 450	— —	Vdc
Collector Cutoff Current ( $V_{CEX} = \text{Rated Value}, V_{BE(off)} = 1.5 Vdc$ ) ( $V_{CEX} = \text{Rated Value}, V_{BE(off)} = 1.5 Vdc, T_C = 125^\circ C$ )		$I_{CEX}$	— —	0.2 2	mAdc
Collector Cutoff Current ( $V_{CE} = \text{Rated } V_{CEX}, R_{BE} = 10 \Omega$ )	$T_C = 25^\circ C$ $T_C = 125^\circ C$	$I_{CER}$	— —	0.5 3	mAdc
Emitter Cutoff Current ( $V_{EB} = 5 Vdc, I_C = 0$ )		$I_{EBO}$	—	0.1	mAdc
Emitter-Base Breakdown Voltage ( $I_E = 50 mA - I_C = 0$ )		$V_{(BR)EBO}$	7	—	Vdc

**SECOND BREAKDOWN**

Second Breakdown Collector Current with Base Forward Biased	$I_{Sb}$	See Figure 12
Clamped Inductive SOA with Base Reverse Biased	RBSOA	See Figure 13

**ON CHARACTERISTICS (1)**

DC Current Gain ( $I_C = 10 Adc, V_{CE} = 5 Vdc$ ) ( $I_C = 8 Adc, V_{CE} = 5 Vdc$ )	BUV48 BUV48A	$h_{FE}$	8 8	— —	— —
Collector-Emitter Saturation Voltage ( $I_C = 10 Adc, I_B = 2 Adc$ ) ( $I_C = 15 Adc, I_B = 3 Adc$ ) ( $I_C = 10 Adc, I_B = 2 Adc, T_C = 100^\circ C$ ) ( $I_C = 8 Adc, I_B = 1.6 Adc$ ) ( $I_C = 12 Adc, I_B = 2.4 Adc$ ) ( $I_C = 8 Adc, I_B = 1.6 Adc, T_C = 100^\circ C$ )	BUV48 BUV48A	$V_{CE(sat)}$	— — — — — —	— — — — — —	1.5 5 2 1.5 5 2 Vdc
Base-Emitter Saturation Voltage ( $I_C = 10 Adc, I_B = 2 Adc$ ) ( $I_C = 10 Adc, I_B = 2 Adc, T_C = 100^\circ C$ ) ( $I_C = 8 Adc, I_B = 1.6 Adc$ ) ( $I_C = 8 Adc, I_B = 1.6 Adc, T_C = 100^\circ C$ )	BUV48 BUV48A	$V_{BE(sat)}$	— — — —	— — — —	1.6 1.6 1.6 1.6 Vdc

**DYNAMIC CHARACTERISTICS**

Output Capacitance ( $V_{CB} = 10 Vdc, I_E = 0, f_{test} = 1 MHz$ )	$C_{ob}$	—	—	350	pF
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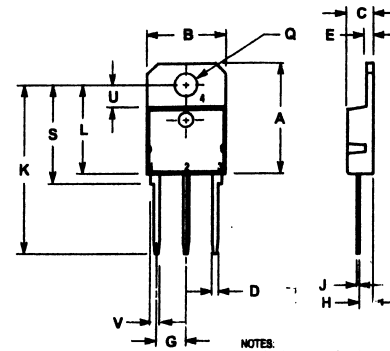
**SWITCHING CHARACTERISTICS**

Resistive Load (Table 1)							
Delay Time	$I_C = 10 A, I_B = 2 A$ $I_C = 8 A, I_B = 1.6 A$ Duty Cycle ≤ 2%, $V_{BE(off)} = 5 V$ $T_p = 30 \mu s, V_{CC} = 300 V$	BUV48 BUV48A	$t_d$	—	0.1	0.2	$\mu s$
Rise Time			$t_r$	—	0.4	0.7	
Storage Time			$t_s$	—	1.3	2	
Fall Time			$t_f$	—	0.2	0.4	

**Inductive Load, Clamped (Table 1)**

Storage Time	$I_C = 10 A$ $I_{B1} = 2 A$	BUV48	$(T_C = 25^\circ C)$	$t_{sv}$	—	1.3	—	$\mu s$
Fall Time				$t_{fl}$	—	0.06	—	
Storage Time	$I_C = 8 A$ $I_{B1} = 1.6 A$	BUV48A	$(T_C = 100^\circ C)$	$t_{sv}$	—	1.5	2.5	
Crossover Time				$t_c$	—	0.3	0.6	
Fall Time				$t_{fl}$	—	0.17	0.35	

(1) Pulse Test: Pulse Width = 300  $\mu s$ , Duty Cycle ≤ 2%.  
 $V_d = 300 V, V_{BE(off)} = 5 V, L_c = 180 \mu H$



TO-218 TYPE

NOTES:  
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.  
2. CONTROLLING DIMENSION: MILLIMETER.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	—	20.35	—	0.801
B	14.70	15.20	0.579	0.598
C	4.75	4.90	0.186	0.193
D	1.10	1.20	0.043	0.047
E	1.17	1.37	0.046	0.054
G	5.40	5.55	0.213	0.219
H	2.00	2.00	0.079	0.118
J	0.50	0.78	0.020	0.031
K	31.00 REF	—	1.220 REF	—
L	—	19.20	—	0.756
Q	4.00	4.10	0.158	0.161
S	17.80	18.20	0.701	0.717
U	4.00 REF	—	0.157 REF	—
V	1.75 REF	—	0.069	—



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