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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
OFF CHARACTERISTICS (1)					
Collector-Emitter Sustaining Voltage (Table 1) ($I_C = 200\text{ mA}, I_B = 0, L = 25\text{ mH}$)	BUV48 BUV48A	$V_{CE0(usc)}$ 400 450	—	—	Vdc
Collector Cutoff Current ($V_{CEX} = \text{Rated Value}, V_{BE(off)} = 1.5\text{ Vdc}$) ($V_{CEX} = \text{Rated Value}, V_{BE(off)} = 1.5\text{ Vdc}, T_C = 125^\circ C$)		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 ($V_{EB} = 5\text{ Vdc}, I_C = 0$)		I_{EBO}	—	0.1	mAdc
Emitter-Base Breakdown Voltage ($I_E = 50\text{ mA} - I_C = 0$)		$V_{(BR)EBO}$	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 ($I_C = 10\text{ Adc}, V_{CE} = 5\text{ Vdc}$) ($I_C = 8\text{ Adc}, V_{CE} = 5\text{ Vdc}$)	BUV48 BUV48A	h_{FE}	8 8	—	—
Collector-Emitter Saturation Voltage ($I_C = 10\text{ Adc}, I_B = 2\text{ Adc}$) ($I_C = 15\text{ Adc}, I_B = 3\text{ Adc}$) ($I_C = 10\text{ Adc}, I_B = 2\text{ Adc}, T_C = 100^\circ C$) ($I_C = 8\text{ Adc}, I_B = 1.6\text{ Adc}$) ($I_C = 12\text{ Adc}, I_B = 2.4\text{ Adc}$) ($I_C = 8\text{ Adc}, I_B = 1.6\text{ Adc}, T_C = 100^\circ C$)	BUV48 BUV48A	$V_{CE(sat)}$	—	—	1.5 5 2 1.5 5 2
Base-Emitter Saturation Voltage ($I_C = 10\text{ Adc}, I_B = 2\text{ Adc}$) ($I_C = 10\text{ Adc}, I_B = 2\text{ Adc}, T_C = 100^\circ C$) ($I_C = 8\text{ Adc}, I_B = 1.6\text{ Adc}$) ($I_C = 8\text{ Adc}, I_B = 1.6\text{ Adc}, T_C = 100^\circ C$)	BUV48 BUV48A	$V_{BE(sat)}$	—	—	1.6 1.6 1.6 1.6

DYNAMIC CHARACTERISTICS

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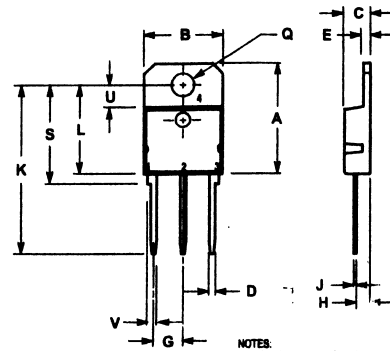
SWITCHING CHARACTERISTICS

Resistive Load (Table 1)						
Delay Time	$I_C = 10\text{ A}, I_B = 2\text{ A}$ $I_C = 8\text{ A}, I_B = 1.6\text{ A}$ Duty Cycle ≤ 2%, $V_{BE(off)} = 5\text{ V}$ $T_p = 30\ \mu s, V_{CC} = 300\text{ V}$	BUV48 BUV48A	t_d	—	0.1 0.2	μs
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	$I_C = 10\text{ A}$ $I_{B1} = 2\text{ A}$	BUV48	$(T_C = 25^\circ C)$	t_{sv}	—	1.3	μs
Fall Time				t_{fl}	—	0.06	
Storage Time	$I_C = 8\text{ A}$ $I_{B1} = 1.6\text{ A}$	BUV48A	$(T_C = 100^\circ C)$	t_{sv}	—	1.5	μs
Crossover Time				t_c	—	0.3	
Fall Time				t_{fl}	—	0.17	

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



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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