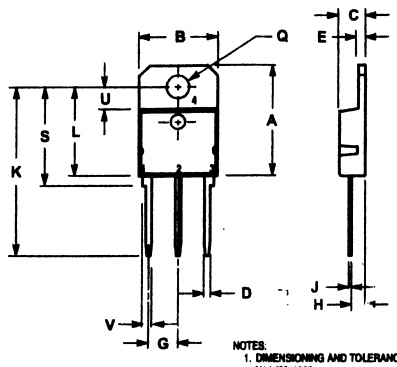
New Jersey Semi-Conductor Products, Inc.

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

TELEPHONE: (973) 376-2922
(212) 227-6005
FAX: (973) 376-8960

BUV48
BUV48A



TO-218 TYPE

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

DIM	MILLIMETERS MIN	MILLIMETERS MAX	INCHES MIN	INCHES MAX
A	—	20.35	—	0.801
B	14.70	15.20	0.579	0.598
C	4.70	4.90	0.185	0.193
D	1.10	1.30	0.043	0.051
E	1.17	1.37	0.046	0.054
G	5.40	5.55	0.213	0.219
H	2.00	3.00	0.079	0.118
J	0.50	0.78	0.020	0.031
K	31.00 REF		1.220 REF	
L	—	16.20	—	0.638
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	

MAXIMUM RATINGS

Rating	Symbol	BUV48	BUV48A	Unit
Collector–Emitter Voltage	$V_{CEO(sus)}$	400	450	Vdc
Collector–Emitter Voltage (V_{BE} = –1.5 V)	V_{CEX}	850	1000	Vdc
Emitter Base Voltage	V_{EB}	7		Vdc
Collector Current — Continuous — Peak (1) — Overload	I_C I_{CM} I_{OI}	15 30 60		Adc
Base Current — Continuous — Peak (1)	I_B I_{BM}	5 20		Adc
Total Power Dissipation — T_C = 25°C — T_C = 100°C Derate above 25°C	P_D	150 75 1		Watts W/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	–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°C unless otherwise noted)

Characteristic		Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS (1)						
Collector–Emitter Sustaining Voltage (Table 1) (I_C = 200 mA, I_B = 0) L = 25 mH	BUV48 BUV48A	$V_{CEO(sus)}$	400 450	— —	— —	Vdc
Collector Cutoff Current (V_{CEX} = Rated Value, $V_{BE(off)}$ = 1.5 Vdc) (V_{CEX} = Rated Value, $V_{BE(off)}$ = 1.5 Vdc, T_C = 125°C)		I_{CEX}	— —	— —	0.2 2	mAdc
Collector Cutoff Current (V_{CE} = Rated V_{CEX}, R_{BE} = 10 Ω)	T_C = 25°C T_C = 125°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		$I_{S/b}$	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°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°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°C) (I_C = 8 Adc, I_B = 1.6 Adc) (I_C = 8 Adc, I_B = 1.6 Adc, T_C = 100°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
SWITCHING CHARACTERISTICS **Resistive Load (Table 1)**						
Delay Time	I_C = 10 A, I_{B_1} = 2 A I_C = 8 A, I_{B_1} = 1.6 A Duty Cycle ≤ 2%, $V_{BE(off)}$ = 5 V T_p = 30 µs, V_{CC} = 300 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 A I_{B_1} = 2 A	BUV48	(T_C = 25°C)	t_{sv}	—	1.3	—	µs
Fall Time				t_{fi}	—	0.06	—	
Storage Time	I_C = 8 A I_{B_1} = 1.6 A	BUV48A	(T_C = 100°C)	t_{sv}	—	1.5	2.5	
Crossover Time				t_c	—	0.3	0.6	
Fall Time				t_{fi}	—	0.17	0.35	

(1) Pulse Test: Pulse Width = 300 µs, Duty Cycle ≤ 2%.
Vcl = 300 V, $V_{BE(off)}$ = 5 V, Lc = 180 µH