

## NPN BUX48 – BUX48A

### HIGH VOLTAGE FAST-SWITCHING POWER TRANSISTOR

They are silicon multi-epitaxial mesa NPN transistor in Jedec TO-3 case.  
They are intended for use in switching and industrial equipment.  
Compliance to RoHS.

#### ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings		Value	Unit	
$V_{CEO}$	Collector-Emitter Voltage	$I_B = 0$	BUX48	400	V
			BUX48A	450	
$V_{CES}$	Collector-Emitter Voltage	$V_{BE} = 0$	BUX48	850	V
			BUX48A	1000	
$V_{CER}$	Collector-Emitter Voltage	$R_{BE} = 10\Omega$	BUX48	850	
			BUX48A	1000	
$V_{CBO}$	Collector-Base Voltage	$I_E = 0$	BUX48	850	V
			BUX48A	1000	
$V_{EBO}$	Emitter-Base Voltage	$I_C = 0$		7	V
$I_C$	Collector Current			15	A
$I_{CM}$	Collector Current Peak	$t_p = 5ms$		30	A
$I_B$	Base Current			4	A
$I_{BM}$	Base Current Peak			20	A
$P_t$	Total Power Dissipation	@ $T_C = 25^\circ$		175	W
$T_J$	Junction Temperature			200	$^\circ C$
$T_{Stg}$	Storage Temperature			-65 to +200	$^\circ C$

#### THERMAL CHARACTERISTICS

Symbol	Ratings	Value	Unit
$R_{thJC}$	Thermal Resistance, Junction to Case	1	$^\circ C/W$

## NPN BUX48 – BUX48A

### ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

Symbol	Ratings	Test Condition(s)		Min	Typ	Max	Unit		
$V_{CEO(SUS)}$	Collector-Emitter Sustaining Voltage (*)	$I_C = 100 \text{ mA}$	BUX48	400	-	-	V		
			BUX48A	450	-	-			
$V_{EBO}$	Emitter-Base Voltage	$I_C = 0$ $I_E = 50 \text{ mA}$	BUX48	7	-	30	V		
			BUX48A						
$I_{CER}$	Collector Cutoff Current	$V_{CE} = 400 \text{ V}$ $I_B = 0$ $R_{BE} = 10\Omega$	@ 25°C	BUX48	-	-	mA		
			@ 125°C					4	
		$V_{CE} = 450 \text{ V}$ $I_B = 0$ $R_{BE} = 10\Omega$	@ 25°C	BUX48A	-	-		0.5	
			@ 125°C						4
$I_{CES}$	Collector Cutoff Current	$V_{CE} = 850 \text{ V}$ $V_{BE} = 0$	@ 25°C	BUX48	-	-	mA		
			@ 125°C					0.2	
		$V_{CE} = 1000 \text{ V}$ $V_{BE} = 0$	@ 25°C	BUX48A	-	-		0.2	
			@ 125°C						2
$I_{EBO}$	Emitter Cutoff Current	$V_{EB} = 5 \text{ V}, I_C = 0$	BUX48	-	-	0.1	mA		
			BUX48A						
$h_{FE}$	DC Current Gain (*)	$I_C = 10 \text{ A}, V_{CE} = 5 \text{ V}$	BUX48	8	-	-	-		
		$I_C = 8 \text{ A}, V_{CE} = 5 \text{ V}$	BUX48A						
$V_{CE(SAT)}$	Collector-Emitter saturation Voltage (*)	$I_C = 10 \text{ A}, I_B = 2 \text{ A}$	BUX48	-	-	1.5	V		
		$I_C = 8 \text{ A}, I_B = 1.6 \text{ A}$	BUX48A						
		$I_C = 15 \text{ A}, I_B = 34 \text{ A}$	BUX48			-		-	5
		$I_C = 12 \text{ A}, I_B = 2.4 \text{ A}$	BUX48A						
$V_{BE(SAT)}$	Base-Emitter saturation Voltage (*)	$I_C = 10 \text{ A}, I_B = 2 \text{ A}$	BUX48	-	-	1.6	-		
		$I_C = 12 \text{ A}, I_B = 2.4 \text{ A}$	BUX48A						

### SWITCHING TIMES

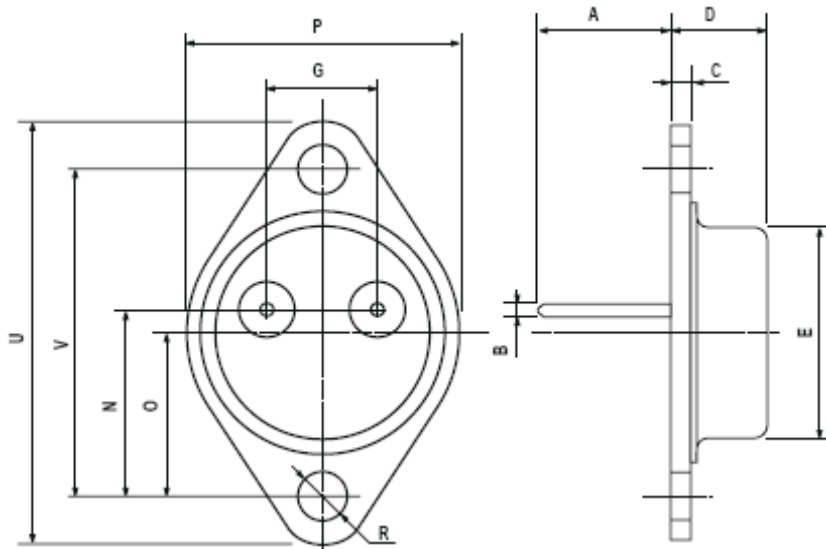
Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit
$t_{on}$	Turn-on time	$I_C = 10 \text{ A}, I_{B1} = -I_{B2} = 2 \text{ A}$ $V_{CC} = 300 \text{ V}, V_{EB} = 5 \text{ V}$	-	-	0.9	$\mu\text{s}$
$t_s$	Storage time		-	-	2	
$t_f$	File time		-	-	0.4	
$t_{on}$	Turn-on time	$I_C = 8 \text{ A}, I_{B1} = -I_{B2} = 1.6 \text{ A}$ $V_{CC} = 300 \text{ V}, V_{EB} = 5 \text{ V}$	-	-	0.9	$\mu\text{s}$
$t_s$	Storage time		-	-	2	
$t_f$	File time		-	-	0.4	

(\*) Pulse Duration = 300  $\mu\text{s}$ , Duty Cycle  $\leq 2\%$

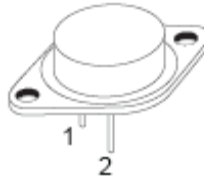
## NPN BUX48 – BUX48A

### MECHANICAL DATA CASE TO-3

DIMENSIONS (mm)			
	min	typ	max
A	11	-	13.10
B	0.97	-	1.15
C	1.5	-	1.65
D	8.32	-	8.92
E	19	-	22
G	10.70	-	11.1
N	16.50	-	17.20
P	25	-	27,20
R	3.84	-	4.21
U	38.50	-	40.13
V	29.90	-	30.40



Pin 1 :	Base
Pin 2 :	Emitter
Case :	Collector



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