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BUX48 & BUX48A Silicon NPN Transistors Audio Power Amp, Switch TO-3 Type Package

Description:

The BUX48 and BUX48A are silicon NPN power transistors in a TO-3 type package designed for high voltage, high-speed power switching regulators, converters, inverters, and motor control system applications

Features:

- Collector-Emitter Sustaining Voltage:
 $V_{CEO(sus)} = 400V$ Min (BUX48)
 $V_{CEO(sus)} = 450V$ Min (BUX48A)
- Collector-Emitter Saturation Voltage: $V_{CE(sat)} = 1.5V$ Max
- Switching Time: $t_f = 0.8\mu s$ Max

Absolute Maximum Ratings:

Collector-Emitter Voltage, V_{CEO}		
BUX48	.....	400V
BUX48A	.....	450V
Collector-Emitter Voltage ($V_{BE} = -2.5V$), V_{CEX}		
BUX48	.....	800V
BUX48A	.....	1000V
Emitter-Base Voltage, V_{EBO}		7V
Collector Current, I_C		
Continuous	.....	15A
Peak	.....	30A
Base Current, I_B		4A
Total Power Dissipation ($T_C = +25^\circ C$), P_D		175W
Derate Above $25^\circ C$		1.0W/ $^\circ C$
Operating Junction Temperature Range, T_J		-65° to $+200^\circ C$
Storage Temperature Range, T_{stg}		-65° to $+200^\circ C$
Thermal Resistance, Junction-to-Case, R_{thJC}		1.0 $^\circ C/W$

Electrical Characteristics: ($T_C = +25^\circ C$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF Characteristics						
Collector-Emitter Sustaining Voltage BUX48	$V_{CEO(sus)}$	$I_C = 100mA, I_B = 0, L = 25mH, \text{Note 1}$	400	-	-	V
			450	-	-	V
Collector Cutoff Current	I_{CEX}	$V_{CE} = V_{CEX}, V_{EB} = -2.5V$	-	-	0.2	mA
		$V_{CE} = V_{CEX}, V_{EB} = -2.5V, T_C = +125^\circ C$	-	-	2.0	mA
Collector Cutoff Current	I_{CER}	$V_{CE} = V_{CEX}, R_{BE} < 10\Omega$	-	-	0.5	mA
		$V_{CE} = V_{CEX}, R_{BE} < 10\Omega, T_C = +125^\circ C$	-	-	4.0	mA
Emitter Cutoff Current	I_{EBO}	$V_{BE} = 5V, I_C = 0$	-	-	1.0	mA

Note 1. Pulse Test: Pulse Width = 300ms, Duty Cycle $\leq 2\%$.

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
ON Characteristics (Note 1)						
Collector-Emitter Saturation Voltage BUX48 BUX48A	$V_{CE(sat)}$	$I_C = 10A, I_B = 2A$	-	-	1.5	V
		$I_C = 15A, I_B = 3A$	-	-	5.0	V
		$I_C = 8A, I_B = 1.6A$	-	-	1.5	V
		$I_C = 12A, I_B = 2.4A$	-	-	5.0	V
Base-Emitter Saturation Voltage BUX48 BUX48A	$V_{BE(sat)}$	$I_C = 10A, I_B = 2A$	-	-	1.6	V
		$I_C = 8A, I_B = 1.6A$	-	-	1.6	V
Switching Characteristics						
BUX48 Turn On Time Storage Time Fall Time	t_{on} t_s t_f	$V_{CC} = 150V, I_C = 10A, I_{B1} = 2A,$ $I_{B2} = -2A$	-	-	1.0	μs
			-	-	3.0	μs
			-	-	0.8	μs
BUX48A Turn On Time Storage Time Fall Time	t_{on} t_s t_f	$V_{CC} = 150V, I_C = 8A, I_{B1} = 1.6A,$ $I_{B2} = -1.6A$	-	-	1.0	μs
			-	-	3.0	μs
			-	-	0.8	μs

Note 1. Pulse Test: Pulse Width = 300ms, Duty Cycle \leq 2%.

