

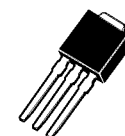
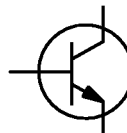
BUD43B

POWER TRANSISTORS
2 AMPERES
700 VOLTS
25 WATTS

Product Preview
SWITCHMODE NPN Silicon
Planar Power Transistor

The BUD43B has an application specific state-of-the-art die designed for use in 220 V line operated Switchmode Power supplies and electronic ballast ("light ballast"). The main advantages brought by this new transistor are:

- Improved Efficiency Due to Low Base Drive Requirements:
 - High and Flat DC Current Gain h_{FE}
 - Fast and Tightened Switching Distributions
 - No Coil Required in Base Circuit for Fast Turn-off (no current tail)



CASE 369-07



CASE 369A-13

MAXIMUM RATINGS

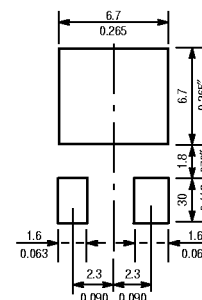
Rating	Symbol	Value	Unit
Collector-Emitter Sustaining Voltage	V_{CEO}	350	Vdc
Collector-Base Breakdown Voltage	V_{CBO}	650	Vdc
Collector-Emitter Breakdown Voltage	V_{CES}	650	Vdc
Emitter-Base Voltage	V_{EBO}	9	Vdc
Collector Current — Continuous	I_C	2	Adc
— Peak (1)	I_{CM}	4	
Base Current — Continuous	I_B	1	Adc
— Peak (1)	I_{BM}	2	
*Total Device Dissipation @ $T_C = 25^\circ\text{C}$	P_D	25	Watt
*Derate above 25°C		0.2	W/ $^\circ\text{C}$
Operating and Storage Temperature	T_J, T_{stg}	-65 to 150	$^\circ\text{C}$

THERMAL CHARACTERISTICS

Thermal Resistance			$^\circ\text{C}/\text{W}$
— Junction to Case	$R_{\theta JC}$	5	
— Junction to Ambient	$R_{\theta JA}$	71.4	
Maximum Lead Temperature for Soldering Purposes: 1/8" from case for 5 seconds	T_L	260	$^\circ\text{C}$

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

MINIMUM PAD SIZES
RECOMMENDED FOR
SURFACE MOUNTED
APPLICATIONS



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BUD43B**ELECTRICAL CHARACTERISTICS** ($T_C = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
Collector–Emitter Sustaining Voltage ($I_C = 100\text{ mA}$, $L = 25\text{ mH}$)	$V_{CEQ(sus)}$	350			Vdc
Collector Cutoff Current ($V_{CE} = \text{Rated } V_{CE0}$; $I_B = 0$)	I_{CEO}			100	μAdc
Collector Cutoff Current ($V_{CE} = \text{Rated } V_{CES}$; $V_{BE} = 0$)	I_{CES}			10 200	μAdc
Emitter–Cutoff Current ($V_{EB} = 9\text{ Vdc}$, $I_C = 0$)	I_{EBO}			100	μAdc

ON CHARACTERISTICS

Base–Emitter Saturation Voltage ($I_C = 2\text{ Adc}$, $I_B = 0.5\text{ Adc}$)	$V_{BE(sat)}$			125	Vdc
Collector–Emitter Saturation Voltage ($I_C = 2\text{ Adc}$, $I_B = 0.5\text{ Adc}$)	$V_{CE(sat)}$	@ $T_C = 25^\circ\text{C}$		1	Vdc
DC Current Gain ($I_C = 1\text{ Adc}$, $V_{CE} = 2\text{ Vdc}$) ($I_C = 2\text{ Adc}$, $V_{CE} = 5\text{ Vdc}$)	h_{FE}	@ $T_C = 25^\circ\text{C}$ @ $T_C = 25^\circ\text{C}$		8 6	

DYNAMIC CHARACTERISTICS

Current Gain Bandwidth ($I_C = 0.5\text{ Adc}$, $V_{CE} = 10\text{ Vdc}$, $f = 1\text{ MHz}$)	f_T		13		MHz
Output Capacitance ($V_{CB} = 10\text{ Vdc}$, $I_E = 0$, $f = 1\text{ MHz}$)	C_{ob}		40		pF
Input Capacitance ($V_{EB} = 8\text{ V}$)	C_{ib}		400		pF

SWITCHING CHARACTERISTICS (Resistive Load) (D.C. $\leq 10\%$, Pulse Width = $20\ \mu\text{s}$)

Turn–on Time	($I_C = 1.2\text{ Adc}$, $I_{B1} = 0.4\text{ Adc}$, $I_{B2} = 0.1\text{ Adc}$, $V_{CC} = 300\text{ V}$)	@ $T_C = 25^\circ\text{C}$	t_{off}	4.7	5.8	μs
Fall Time	($I_C = 2.5\text{ Adc}$, $I_{B1} = 0.5\text{ Adc}$, $I_{B2} = 0.5\text{ Adc}$, $V_{CC} = 150\text{ V}$)	@ $T_C = 25^\circ\text{C}$	t_f		800	ns