

8961726 TEXAS INSTR (OPTO)

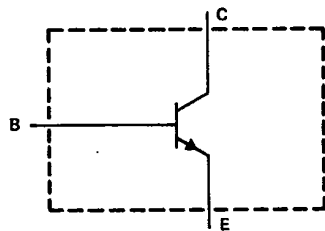
62C 36663 D

BUX82, BUX83
N-P-N SILICON POWER TRANSISTORS

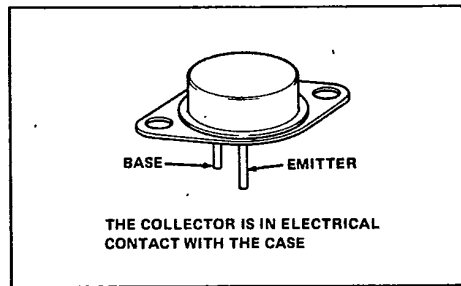
T-33-11
 OCTOBER 1982 - REVISED OCTOBER 1984

- 60 W at 50°C Case Temperature
- 6 A Continuous Collector Current
- 8 A Peak Collector Current
- Series Features High-Voltage and Peak Current Ratings, Low Saturation Voltages, and a High Degree of Electrical Robustness
- Designed for Switching-Mode Power Supplies, CRT Scanning, Inverters, and Other Industrial Applications, Where Rapid Switching of Inductive Loads is Necessary

device schematic



TO-3 PACKAGE



absolute maximum ratings at 25°C case temperature (unless otherwise noted)

	BUX82	BUX83
Collector-base voltage	800 V	1000 V
Collector-emitter voltage ($V_{BE} = 0$)	800 V	1000 V
Collector-emitter voltage ($I_B = 0$)	400 V	450 V
Continuous collector current	6 A	
Peak collector current (see Note 1)	8 A	
Continuous base current	2 A	
Peak base current (see Note 1)	3 A	
Continuous device dissipation at (or below) 50°C case temperature	60 W	
Operating junction temperature	- 65°C to 150 °C	

NOTE 1: These values apply for $t_W = 2$ ms, duty cycle $< 2\%$.



BD, BDW, BDX, BU, BUX, BUY Devices

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**BUX82, BUX83
N-P-N SILICON POWER TRANSISTORS**

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electrical characteristics at 25°C case temperature (unless otherwise noted)

PARAMETER	TEST CONDITIONS	BUX82			BUX83			UNIT
		MIN	TYP	MAX	MIN	TYP	MAX	
V _{CEO(sus)}	I _C = 0.1 A, L = 25 mH, See Note 2	400			450			V
V _{CER(sus)}	I _C = 0.1 A, L = 15 mH, R _{BE} = 100 Ω, See Note 2	500			500			V
I _{CEO}	V _{CE} = 400 V, I _B = 0 V _{CE} = 450 V, I _B = 0			1			1	μA
I _{CES}	V _{CE} = 800 V, V _{BE} = 0			1				μA
	V _{CE} = 1000 V, V _{BE} = 0						1	
	V _{CE} = 800 V, V _{BE} = 0, T _C = 125°C			150				
	V _{CE} = 1000 V, V _{BE} = 0, T _C = 125°C						150	
I _{EBO}	V _{EB} = 10 V, I _C = 0			1			1	mA
V _{CE(sat)}	I _C = 2.5 A, I _B = 0.5 A			1			1	V
	I _C = 4 A, I _B = 1.25 A			2			2	
V _{BE(sat)}	I _C = 2.5 A, I _B = 0.5 A			1.2			1.2	V
	I _C = 4 A, I _B = 1.25 A			1.4			1.4	
h _{FE}	V _{CE} = 5 V, I _C = 0.6 A, See Note 3			40			40	
f _T	V _{CE} = 10 V, I _C = 0.2 A, See Note 4			12			12	MHz
C _{obo}	V _{CB} = 20 V, I _C = 0, f = 0.1 MHz			110			110	pF

- NOTES: 2. Inductive loop switching measurement.
 3. These parameters must be measured using pulse techniques, t_w = 300 μs, duty cycle < 2 %.
 4. To obtain f_T, the |h_{fe}| response is extrapolated at the rate of -6 dB per octave from f = 1 MHz to the frequency at which |h_{fe}| = 1.

thermal characteristics

PARAMETER	MIN	TYP	MAX	UNIT
R _{θJC}		1.65		°C/W

resistive-load switching characteristics at 25°C case temperature (unless otherwise noted)

PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
t _{on}	I _C = 2.5 A, V _{CC} = 250 V, T _C = 25°C, I _{B1} = 0.5 A, I _{B2} = -1 A, See Figure 1		0.4		μs
t _s			2.5		μs
t _f			0.25		μs
t _{on}	I _C = 2.5 A, V _{CC} = 250 V, T _C = 100°C, I _{B1} = 0.5 A, I _{B2} = -1 A, See Figure 1		0.8		μs
t _s			3		μs
t _f			0.5		μs

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TYPICAL CHARACTERISTICS

TURN-ON TIMES
vs
COLLECTOR

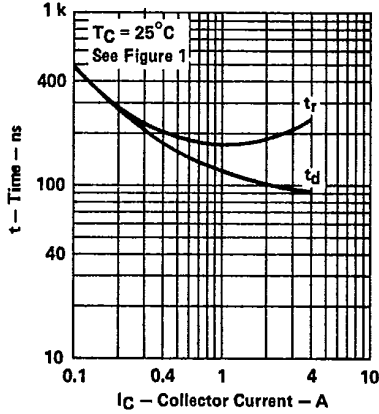


FIGURE 2

TURN-OFF TIMES
vs
COLLECTOR

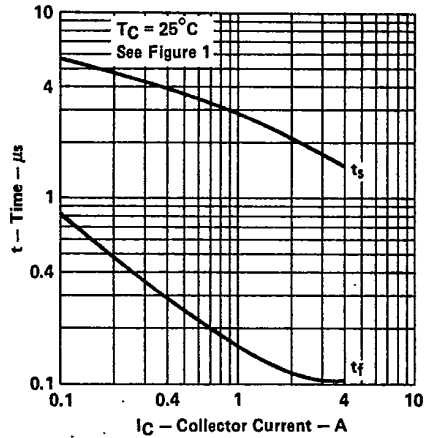


FIGURE 3

COLLECTOR-EMITTER SATURATION VOLTAGE
vs
BASE CURRENT

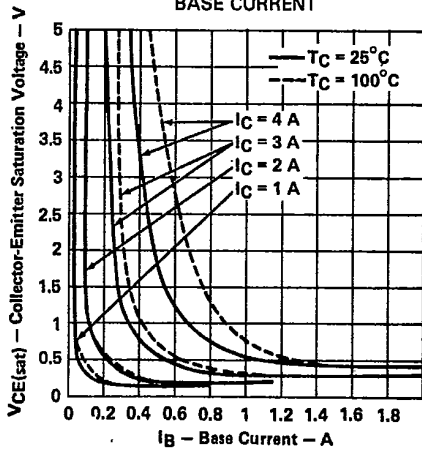


FIGURE 4

BASE-EMITTER SATURATION VOLTAGE
vs
BASE CURRENT

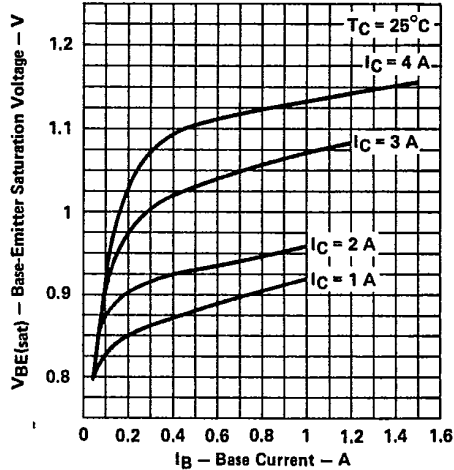


FIGURE 5



BD, BDW, BDX, BU, BUX, BUY Devices

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TYPICAL CHARACTERISTICS

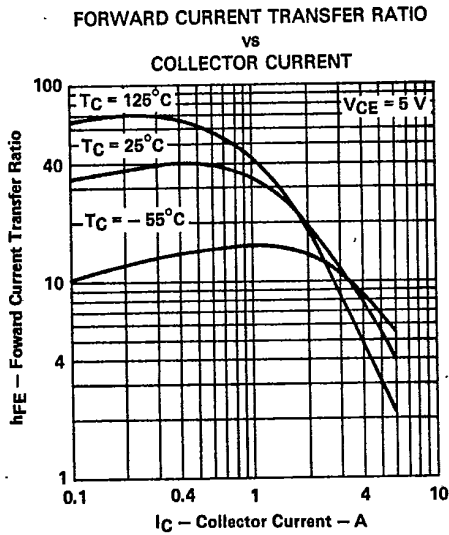


FIGURE 6

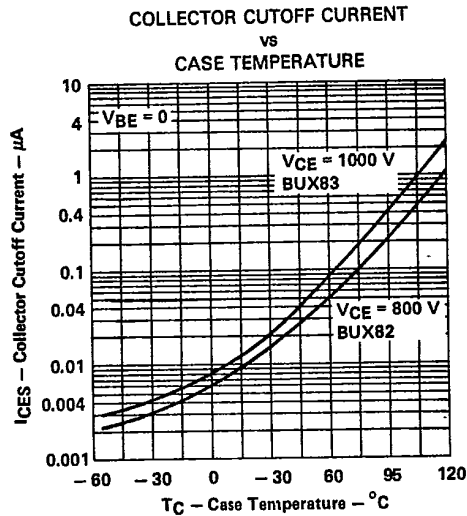


FIGURE 7

COLLECTOR-EMITTER LATCHING VOLTAGE
vs
BASE-EMITTER RESISTANCE

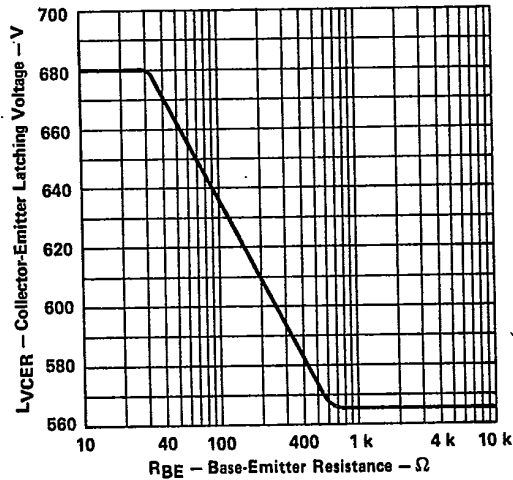


FIGURE 8



BD, BDW, BDX, BU, BUX, BUY Devices

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MAXIMUM SAFE OPERATING AREAS

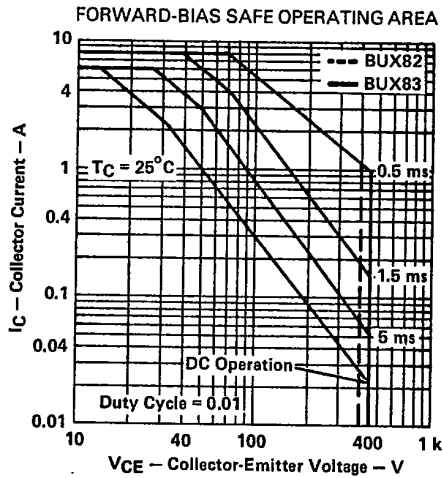


FIGURE 9

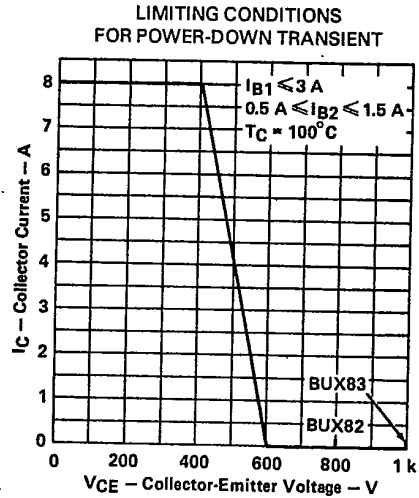


FIGURE 10

THERMAL INFORMATION

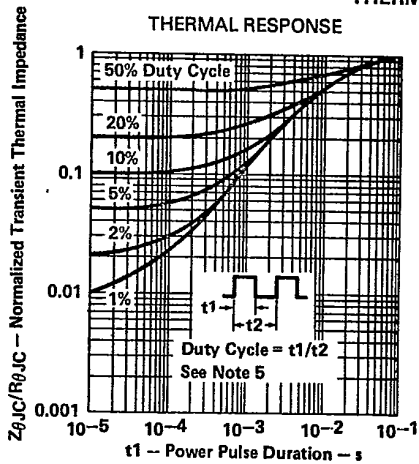


FIGURE 11

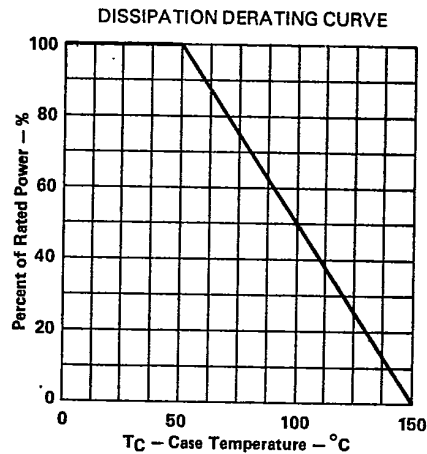


FIGURE 12

NOTE 7: Read time at end of t1, $T_{J(max)} - T_C = P_{D(peak)} \cdot \left(\frac{Z_{\theta JC}}{R_{\theta JC}}\right) \cdot R_{\theta JC(max)}$.

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