

3875081 G E SOLID STATE

01E 17616 D 7-33-13
Pro Electron Power Transistors

File Number 1231

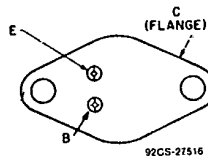
BUX45

High-Voltage, High-Power Silicon N-P-N Power-Switching Transistors

Features:

- $V_{CE0} - 500V$
- $I_C - 5A$
- $P_T - 120W$

TERMINAL DESIGNATIONS



JEDEC TO-204AA

The RCA-BUX45 is an epitaxial-base silicon n-p-n transistor having high-voltage capability, fast switching speeds, and low saturation voltages, together with high safe-operating-area (SOA) ratings. It is specially designed for use in off-line power supplies and is also well suited for use in a wide range of inverter or converter circuits and pulse-width-modulated regulators.

The RCA-BUX45 is supplied in a steel JEDEC TO-204AA hermetic package.

MAXIMUM RATINGS, Absolute-Maximum Values:

	BUX45	
V_{CBO}	500	V
V_{CER}	500	V
$R_{BE} = 100\Omega$	500	V
V_{CEO}	500	V
V_{CEX}	500	V
$V_{BE} = -1.5V$	7	V
V_{EBO}	5	A
I_C	7	A
I_{CM}	1	A
I_B	120	W
P_T	0.69	W/°C
$I_C \leq 25^\circ C$	-65 to +200	°C
$T_C > 25^\circ C$ derate linearly	235	°C
$T_{319} T_J$		
T_L		
At distances $\geq 1/32$ in. (0.8 mm) from seating plane for 10 s max.		

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BUX45

ELECTRICAL CHARACTERISTICS, Case Temperature (T_C) = 25°C
Unless Otherwise Specified

CHARACTERISTIC	TEST CONDITIONS				LIMITS			UNITS
	VOLTAGE		CURRENT		BUX45			
	V dc		A dc		Min.	Typ.	Max.	
	V _{CE}	V _{BE}	I _C	I _B				
I _{CEO}	400			0	—	—	1	mA
I _{CEX}	500	-1.5			—	—	1	
$T_C = 125^\circ\text{C}$	500	-1.5			—	—	5	
I _{EBO}		-5	0		—	—	1	
V _{CEO(sus)} ^b			0.2 ^a	0	500	—	—	V
V(BR)EBO I _E = 50 mA			0		7	—	—	
h _{FE}	4		1 ^a		15	—	45	
	4		2 ^a		8	—	—	
V _{BE(sat)}			2 ^a	0.4	—	0.8	2	V
V _{CE(sat)}			1 ^a	0.125	—	0.15	1	
			2 ^a	0.4	—	0.15	2	
f _T	15		1		8	—	—	MHZ
I _S /b t = 1s, nonrepetitive	135				0.15	—	—	A
	30				4	—	—	
t _{ON}	V _{CC}		2	0.4	—	0.4	1	μS
t _s I _{B1} = I _{B2}	=		2	0.4	—	3.5	5	
t _f I _{B1} = I _{B2}	100 V		2	0.4	—	0.6	1.2	
R _{θJC}					—	—	1.46	°C/W

^a Pulsed; pulse duration = 300 μs, duty factor ≤ 2%.

^b CAUTION: The sustaining voltage V_{CEO(sus)} **MUST NOT** be measured on a curve tracer.

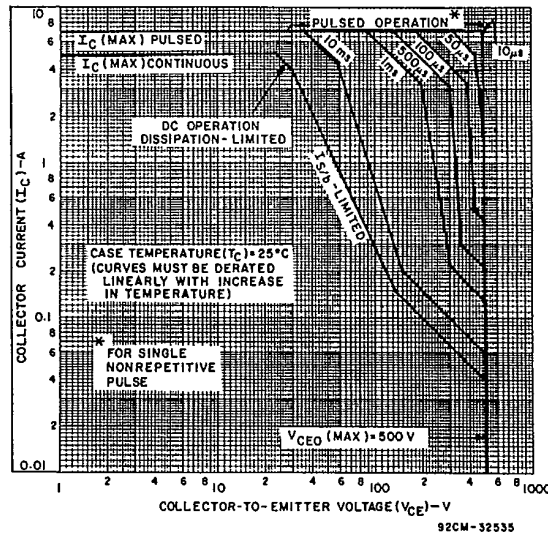


Fig. 1 — Maximum safe-operating areas ($T_C = 25^\circ\text{C}$).

BUX45

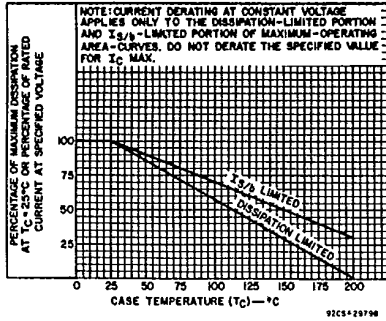


Fig. 2 — Derating curves for $I_{c/b}$ and dissipation.

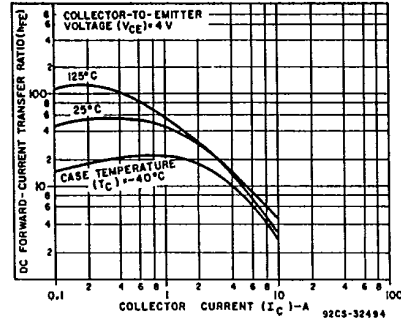


Fig. 3 — Typical dc beta characteristics.

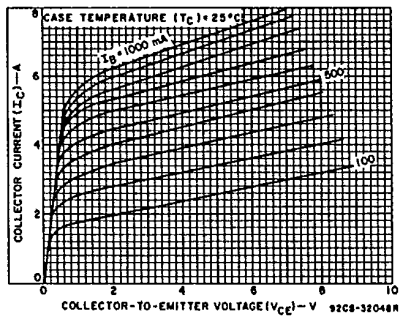


Fig. 4 — Typical output characteristics.

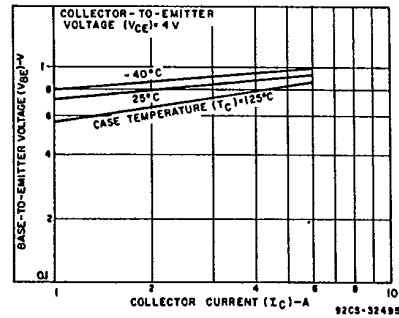


Fig. 5 — Typical base-to-emitter voltage as a function of collector current.

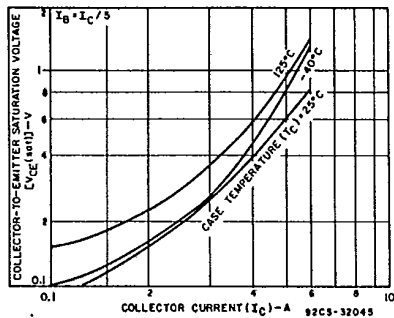


Fig. 6 — Typical collector-to-emitter saturation voltage as a function of collector current.

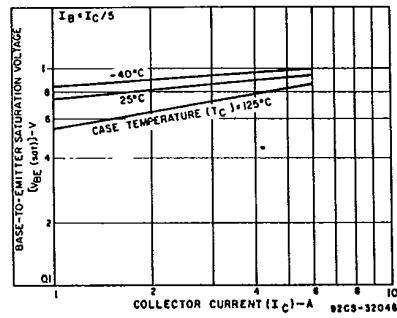


Fig. 7 — Typical base-to-emitter saturation voltage as a function of collector current.

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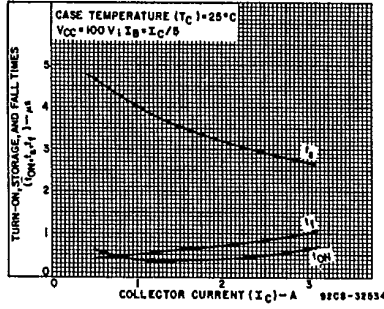


Fig. 8 — Typical saturated-switching times as a function of collector current.

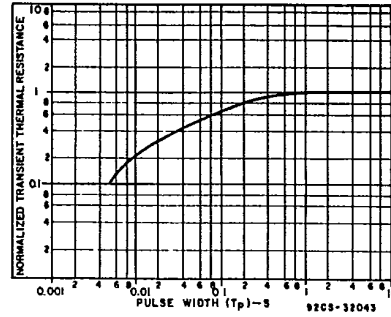


Fig. 9 — Typical thermal-response characteristic.