

3875081 G E SOLID STATE

01E 17608 D T-33-15
Pro Electron Power Transistors

File Number 1172

BUX21

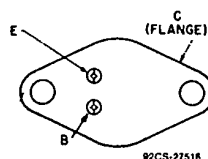
Silicon N-P-N Switching Transistor

For Switching Applications in
Industrial and Commercial Equipment

Features:

- $V_{CEO} - 200V$
- $I_C - 40 A$
- $P_T - 250 W$

TERMINAL DESIGNATIONS



JEDEC TO-204AA

The RCA-BUX21 is a silicon n-p-n power transistor featuring fast switching speeds, low saturation voltage, and high safe-operating-area (SOA) ratings. It is specially designed for converters, inverters, pulse-width-modulated regulators, and a variety of power switching circuits.

The RCA-BUX21 transistor is supplied in a steel JEDEC TO-204AA hermetic package.

MAXIMUM RATINGS, Absolute-Maximum Values:

	BUX21	
V_{CBO}	250	V
$V_{CEO(SUS)}$	200	V
$V_{CEX(SUS)}$		
$V_{BE} = -1.5V$	250	V
$V_{CER(SUS)}$		
$R_{BE} = 100 \Omega$	240	V
V_{EBO}	7	V
I_C	40	A
I_{CM}	50	A
I_B	8	A
P_T		
At T_G up to $25^\circ C$ and V_{CE} up to 20 V	250	W
T_J, T_{slg}	-65 to +200	$^\circ C$
T_L		
At distances $\geq 1/16$ in. (1.58 mm) from case for 10 s max.	200	$^\circ C$

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DT-33-15

BUX21

ELECTRICAL CHARACTERISTICS, at Case Temperature (T_C) = 25°C unless otherwise specified

CHARACTERISTIC	TEST CONDITIONS				LIMITS			UNITS
	VOLTAGE V dc		CURRENT A dc		BUX21			
	V _{CE}	V _{BE}	I _C	I _B	Min.	Typ.	Max.	
I _{CEO}	160	—	—	0	—	—	3	mA
I _{CEV}	250	−1.5	—	—	—	—	3	
T _C = 125°C	250	−1.5	—	—	—	—	12	
I _{EBO}	—	−5	0	—	—	—	1	
V _{CEO(sus)} ^b	—	—	0.2 ^a	—	200 ^a	—	—	V
V _{(BR)EBO} I _E = 0.05 A	—	—	0	—	7	—	—	V
V _{BE(sat)}	—	—	25 ^a	3	—	1.2	1.5	
V _{CE(sat)}	— —	— —	12 ^a 25 ^a	1.2 3	— —	0.2 0.7	0.6 1.5	
h _{FE}	2 4	— —	12 ^a 25 ^a	— —	20 10	— —	60 —	
I _{S/b} t = 1 s, nonrepetitive	140 20	— —	— —	— —	0.15 12.5	— —	— —	A
f _T f = 10 MHz	15	—	2	—	8	—	—	MHz
t _{on}	V _{CC} = 100 V	—	25	3	—	0.3	1.2	μs
t _s (I _{B1} = I _{B2})	V _{CC} = 100 V	—	25	3	—	1.0	1.8	
t _f (I _{B1} = I _{B2})	V _{CC} = 100 V	—	25	3	—	0.2	0.4	
R _{θJC}	—	—	—	—	—	—	0.7	°C/W

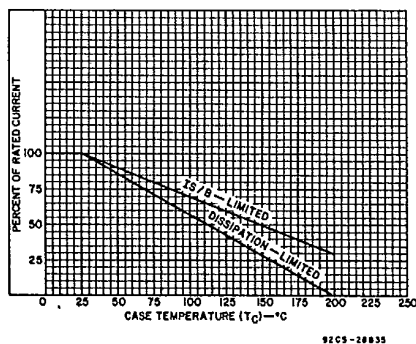
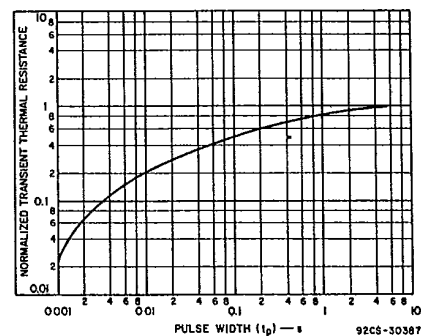
^a Pulsed, pulse duration = 300 μs , duty factor $\leq 2\%$.^b CAUTION: Sustaining Voltages $V_{CEO(sus)}$ MUST NOT be measured on a curve tracer.Fig. 1 — Dissipation and $I_{S/b}$ derating curve.

Fig. 2 — Typical thermal-response characteristic.

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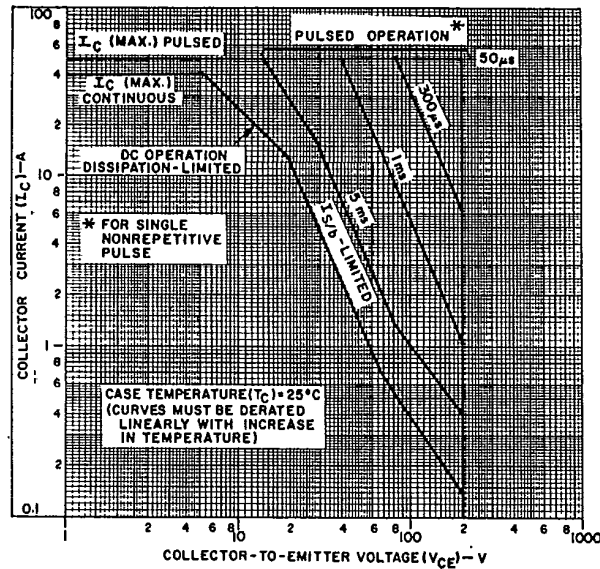
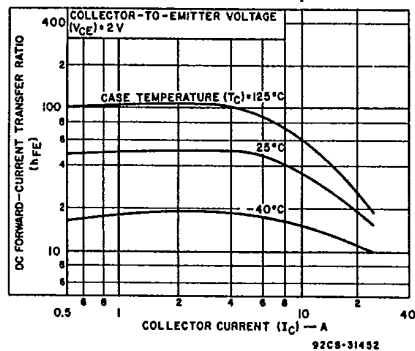
Fig. 3 — Maximum operating areas ($T_c = 25^\circ\text{C}$). 92CM-31448

Fig. 4 — Typical dc beta characteristics. 92CS-31432

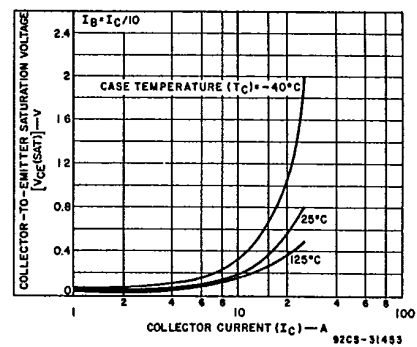


Fig. 5 — Typical collector-to-emitter saturation voltage characteristics. 92CS-31453

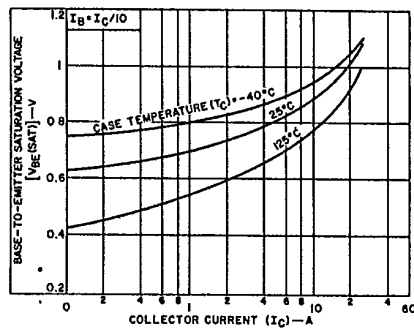


Fig. 6 — Typical base-to-emitter saturation voltage characteristics. 92CS-31454

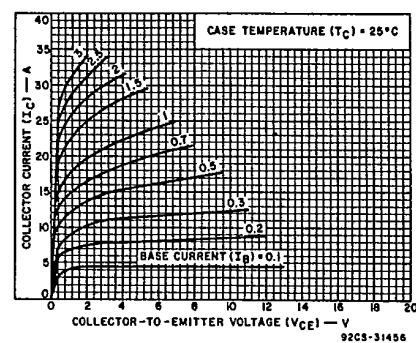


Fig. 7 — Typical output characteristics. 92CS-31456

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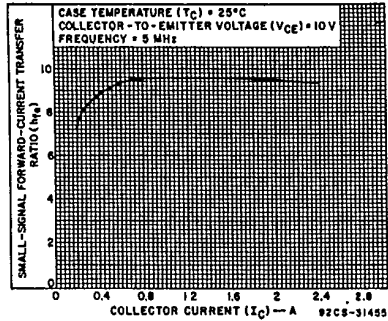


Fig. 8 — Typical small-signal forward-current transfer ratio characteristics.

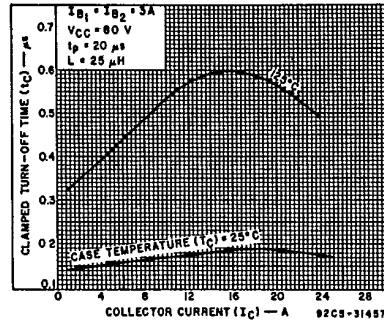


Fig. 9 — Typical clamped turn-off time characteristics.

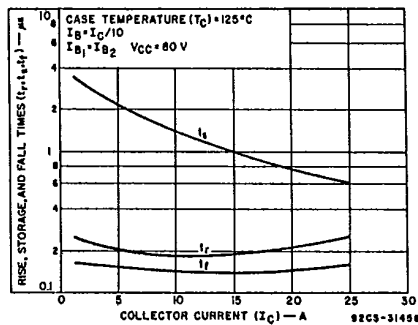
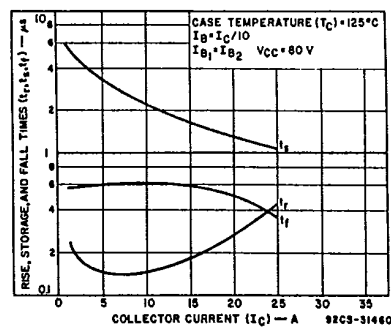
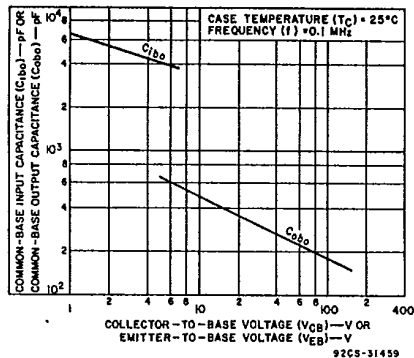
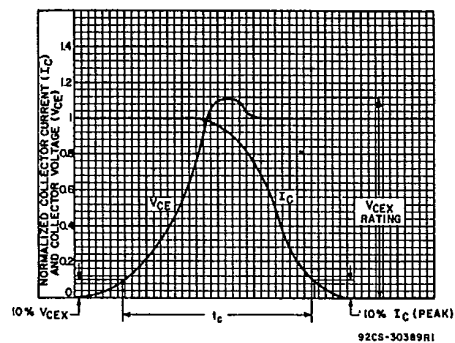


Fig. 10 — Typical saturated-switching-time characteristics as a function of collector current.

Fig. 11 — Typical-switching-time characteristics at $T_C = 125^\circ C$ as a function of collector current.Fig. 12 — Typical common-base input (C_{ibd}) or output (C_{obd}) capacitance characteristics.Fig. 13 — Oscilloscope display for normalized measurement of clamped inductive switching time (t_c).

