

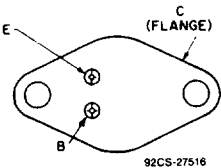
Silicon N-P-N
Switching Transistor

For High-Voltage Switching and
Amplifier Applications in Industrial
and Commercial Equipment

Features:

- V_{CEO} — 400V
- I_C — 10 A
- P_T — 150 W

TERMINAL DESIGNATIONS



JEDEC TO-204AA

The RCA-BUX14 is a silicon n-p-n power transistor featuring fast switching speeds, low saturation voltage, and high safe-operating-area (SOA) ratings. It is especially 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-BUX14 transistor is supplied in a steel JEDEC TO-204AA hermetic package.

MAXIMUM RATINGS, Absolute-Maximum Values:

	BUX14
V_{CBO}	450 V
V_{CEO}	400 V
V_{CEX}	
$V_{BE} = -1.5V$	450 V
V_{CER}	
$R_{BE} = 100 \Omega$	440 V
V_{EBO}	7 V
I_C	10 A
I_{CM}	15 A
I_B	2 A
P_T	
At T_C up to 25°C	150 W
T_J, T_{stg}	-65 to +200 °C
T_L	
At distances $\geq 1/16$ in. (1.58 mm) from case for 10 s max.	235°C

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

CHARACTERISTIC	TEST CONDITIONS				LIMITS			UNITS
	VOLTAGE V dc		CURRENT A dc		BUX14			
	V _{CE}	V _{BE}	I _C	I _B	Min.	Typ.	Max.	
I _{CEO}	320	—	—	0	—	—	1.5	mA
I _{CEX}	450	−1.5	—	—	—	—	1.5	
T _C = 125 °C	450	−1.5	—	—	—	—	6	
I _{EBO}	—	−5	0	—	—	—	1	V
V _{CEO(sus)} ^b	—	—	0.2 ^a	0	400 ^a	—	—	
V _{(BR)EBO} I _E = 0.05 A	—	—	0	—	7	—	—	V
V _{BE(sat)}	—	—	6 ^a	1.2	—	1	1.5	
V _{CE(sat)}	—	—	3 ^a	0.6	—	0.2	0.6	
	—	—	6 ^a	1.2	—	0.5	1.5	
h _{FE}	4	—	3 ^a	—	15	—	60	
	4	—	6 ^a	—	8	—	—	
I _{S/b} t = 1 s, nonrepetitive	140	—	—	—	0.15	—	—	A
	30	—	—	—	5	—	—	
f _T	15	—	1	—	8	—	—	MHz
t _{on}	V _{CC}	—	6	1.2	—	0.5	1.4	μs
t _s	=	—	6	1.2 ^c	—	1	3	
t _f	30 V	—	6	1.2 ^c	—	0.3	1.2	
R _{θJC}	—	—	—	—	—	—	1.17	°C/W

^aPulsed, pulse duration = 300 μs , duty factor $\leq 2\%$.

^bCAUTION: Sustaining Voltage $V_{CEO(sus)}$ *MUST NOT* be measured on a curve tracer.

^c $I_{B1} = I_{B2}$.

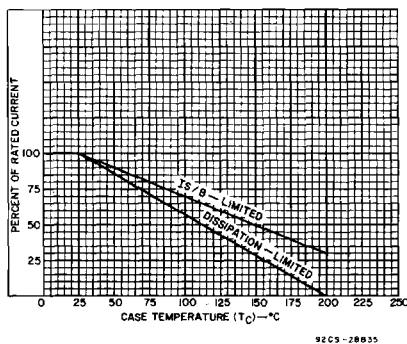


Fig. 1 — Dissipation and $I_{S/B}$ derating curves.

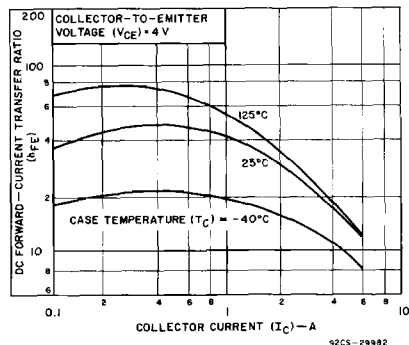


Fig. 2 — Typical dc beta characteristics.

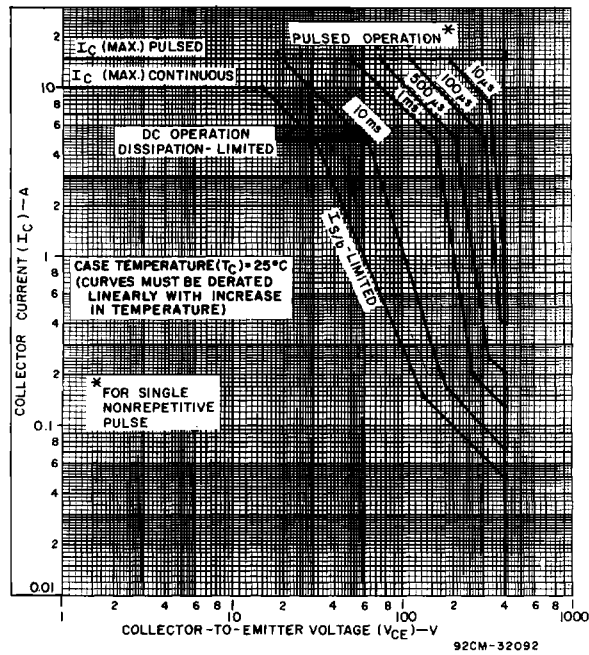


Fig. 3 — Maximum safe-operating areas ($T_c = 25^\circ\text{C}$).

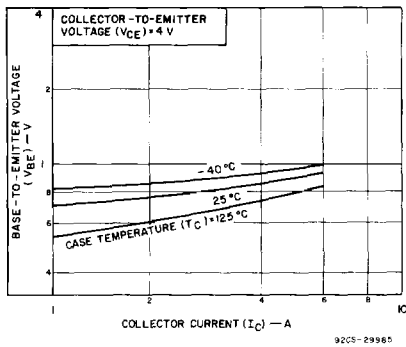


Fig. 4 — Typical base-to-emitter voltage as a function of collector current.

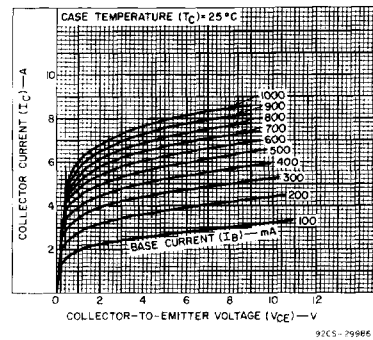


Fig. 5 — Typical output characteristics.

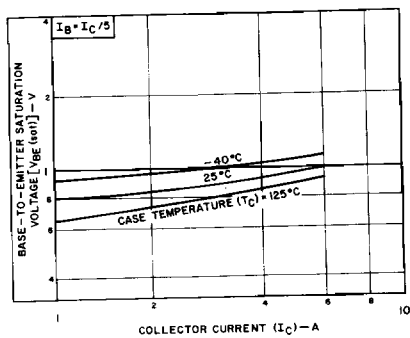


Fig. 6 — Typical base-to-emitter saturation voltage as a function of collector current.

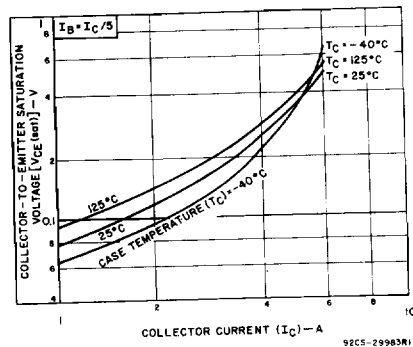


Fig. 7 — Typical collector-to-emitter saturation voltage as a function of collector current.

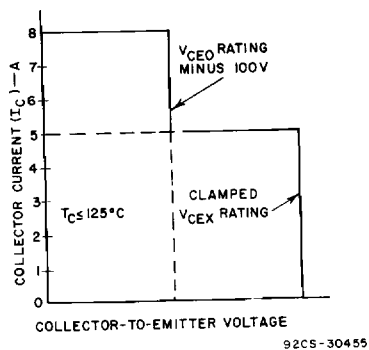


Fig. 8 — Maximum operating conditions for switching between saturation and cutoff.

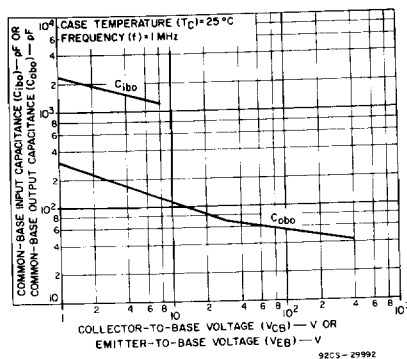


Fig. 9 — Typical common-base input or output capacitance characteristics as a function of collector-to-base voltage or emitter-to-base voltage.