

Silicon P-N-P Epitaxial-Base High-Power Transistors

Rugged, Broadly Applicable Devices
For Industrial and Commercial Use

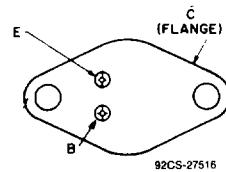
Features:

- High dissipation capability
- Low saturation voltages
- Maximum safe-area-of-operation curves
- High gain at high current

Applications:

- Series and shunt regulators
- High-fidelity amplifiers
- Power-switching circuits
- Solenoid drivers

TERMINAL DESIGNATIONS



JEDEC TO-204AA

The RCA-BDX18 and MJ2955 are epitaxial-base silicon p-n-p transistors featuring high gain at high current. These devices have a dissipation capability of 115 watts (BDX18), and 150 watts (MJ2955) at case temperatures up to 25°C.

They differ in voltage ratings and in the currents at which the parameters are controlled. All are supplied in the steel JEDEC TO-204AA hermetic package.

MAXIMUM RATINGS, Absolute-Maximum Values:

	BDX18 MJ2955	
V_{CBO}	-100	V
$V_{CER(SUS)}$ $R_{BE} = 100 \Omega$	-70	V
$V_{CEO(SUS)}$	-60	V
V_{EBO}	-7	V
I_C	-15	A
I_B	-7	A
P_T At $T_C \leq 25^\circ C$	{ 150 (MJ2955) { 115 (BDX18)	W
At $T_C > 25^\circ C$	{ 0.86 (MJ2955) { 0.66 (BDX18)	W/°C
T_{stg}, T_J	-65 to 200	°C
T_L At distance $\geq 1/32$ in. (0.8 mm) from seating plane for 10 s max.	235	°C

BDX18, MJ2955

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

CHARACTERISTIC	TEST CONDITIONS				LIMITS		UNITS	
	VOLTAGE V dc		CURRENT A dc		BDX18 MJ2955			
	V_{CE}	V_{BE}	I_C	I_B	Min.	Max.		
I_{CEX}	BDX18	-100	1.5	—	—	—	-5	mA
	MJ2955	-100	1.5	—	—	—	-1	
I_{CEX} , $T_C = 150^\circ\text{C}$	MJ2955	-100	1.5	—	—	—	-5	mA
	BDX18	-60	1.5	—	—	—	-10	
I_{CEO}		-30	—	—	—	—	-0.7	mA
I_{EBO}		—	7	—	—	—	-5	mA
$V_{CEO}(SUS)$		—	—	-0.2	—	-60 ^b	—	V
$V_{CER}(SUS)$ $R_{BE} = 100 \Omega$		—	—	-0.2	—	-70 ^b	—	V
h_{FE}	BDX18, MJ2955	-4	—	-4 ^a	—	20	70	
	Except BDX18	-4	—	-10 ^a	—	5	—	
V_{BE}		-4	—	-4 ^a	—	—	-1.8	V
$V_{CE}(sat)$	BDX18, MJ2955	—	—	-4 ^a	-0.4	—	-1.1	V
	MJ2955 only	—	—	-10 ^a	-3.3	—	-3	
f_{hfe} $f = 10$ kHz	MJ2955	-4	—	-1	—	10	—	kHz
$ h_{fe} $ $f = 1$ MHz	BDX18	-4	—	-1	—	2.5	—	
	MJ2955	-4	—	-0.5	—	4	—	
h_{fe} $f = 1$ kHz		-4	—	-1	—	15	120	
$I_{S/B}$ $t_p = 1$ s nonrep.		-40	—	—	—	2.87	—	A
$R_{\theta JC}$	BDX18	—	—	—	—	—	1.5	°C/W
	MJ2955	—	—	—	—	—	1.17	

^aPulsed; pulse duration = 300 μ s, duty factor = 1.8%.

^bCAUTION: Sustaining voltages $V_{CEO}(SUS)$ and $V_{CER}(SUS)$ **MUST NOT** be measured on a curve tracer.

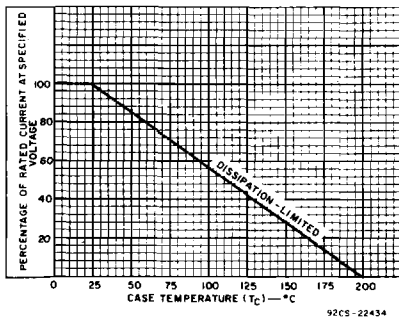


Fig. 1 — Derating curve.

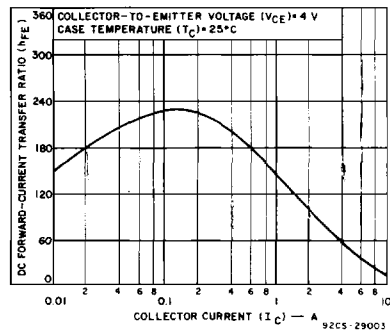


Fig. 2 — Typical dc beta characteristics.

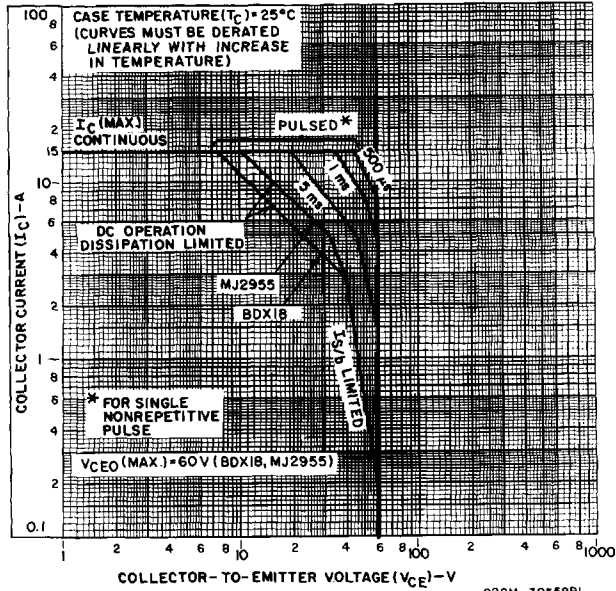


Fig. 3 — Maximum operating areas for BDX18 and MJ2955.

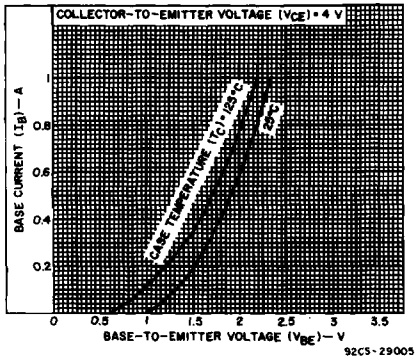


Fig. 4 — Typical input characteristics.

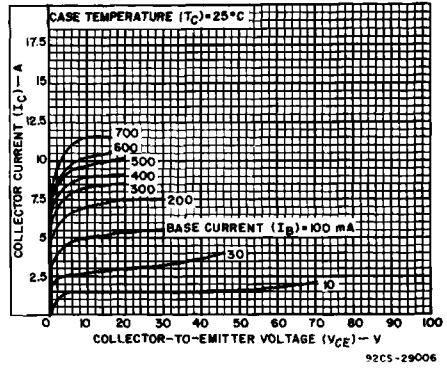


Fig. 5 — Typical output characteristics.

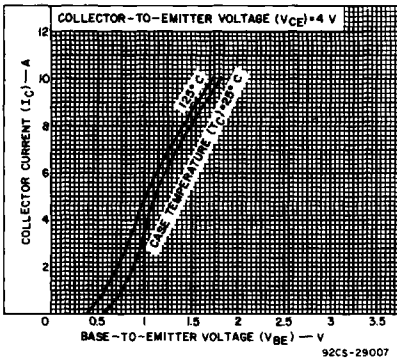


Fig. 6 — Typical transfer characteristics.

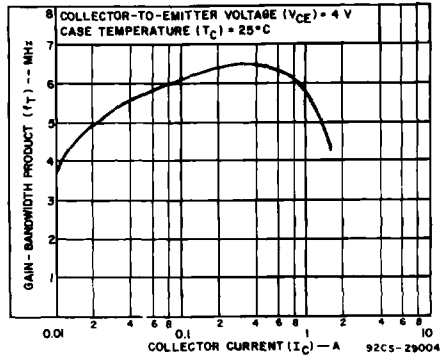


Fig. 7 — Typical gain-bandwidth product.