

2N6253, 2N6254, 2N6371

File Number 1077

High-Power Silicon N-P-N Transistors

For Industrial and Commercial Use

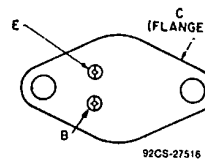
Features:

- Maximum safe-area-of-operation curves
- Low saturation voltages
- High dissipation capability

Applications:

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

TERMINAL DESIGNATIONS



JEDEC TO-204AA

The RCA-2N6253, 2N6254, and 2N6371 are silicon n-p-n transistors intended for a wide variety of high-power applications. The construction of these devices renders them highly resistant to second breakdown over a wide range of operating conditions.

These devices differ in maximum ratings for voltage and power dissipation. All are supplied in JEDEC TO-204AA hermetic steel packages.

MAXIMUM RATINGS, Absolute-Maximum Values:

	2N6253	2N6254	2N6371	
* V_{CE0}	55	100	50	V
* $V_{CE0}(SUS)$				
$R_{BE} = 100 \Omega$	55	85	45	V
* $V_{CE0}(SUS)$	45	80	40	V
$V_{CE0}(SUS)$				
$V_{BE} = -1.5 V$	55	90	50	V
* V_{EBO}	5	7	5	V
* I_C	15	15	15	A
* I_B	7	7	7	A
* P_T				
$\leq 25^\circ C$	115	150	117	W
$> 25^\circ C$	Derate Linearly to 200°C			
* T_J, T_{stg}	-65 to +200			°C
* T_L				
During soldering, at distances 1/32 in. (0.8 mm) from seating plane for 10 s max.	235			°C

* In accordance with JEDEC registration data formats JS-6 RDF-2; 2N6253, 2N6254, 2N6371.

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ELECTRICAL CHARACTERISTICS, $T_C = 25^\circ\text{C}$ Unless Otherwise Specified

CHARACTERISTIC	TEST CONDITIONS				LIMITS						UNITS
	Voltage V dc		Current A dc		2N6253		2N6254		2N6371		
	V_{CE}	V_{BE}	I_C	I_B	Min.	Max.	Min.	Max.	Min.	Max.	
I_{CEO}	25	—	—	0	—	1.5	—	—	—	1.5	mA
	60	—	—	0	—	—	—	1	—	—	
I_{CEX}	45	-1.5	—	—	—	—	—	—	—	2	mA
	55	-1.5	—	—	—	2	—	—	—	—	
	100	-1.5	—	—	—	—	—	0.5	—	—	
$T_C = 150^\circ\text{C}$	40	-1.5	—	—	—	—	—	—	—	10	mA
	50	-1.5	—	—	—	10	—	—	—	—	
	100	-1.5	—	—	—	—	—	5	—	—	
I_{EBO}	—	-5	—	—	—	10	—	—	—	10	mA
	—	-7	—	—	—	—	—	0.5	—	—	
$V_{CEO(SUS)}$	—	—	0.2 ^a	0	45	—	80	—	40	—	V
$V_{CEB(SUS)}$ $R_{BE} = 100 \Omega$	—	—	0.2 ^a	—	55	—	85	—	45	—	
$V_{CEV(SUS)}$	—	-1.5	0.1 ^a	—	55	—	90	—	50	—	
h_{FE}	4	—	3 ^a	—	20	70	—	—	—	—	
	2	—	5 ^a	—	—	—	20	70	—	—	
	4	—	8 ^a	—	—	—	—	—	15	60	
	4	—	15 ^a	—	3	—	5	—	—	—	
	4	—	16 ^a	—	—	—	—	—	4	—	
V_{BE}	4	—	3 ^a	—	—	1.7	—	—	—	—	V
	2	—	5 ^a	—	—	—	—	1.5	—	—	
	4	—	16 ^a	—	—	—	—	—	—	4	
$V_{CE(sat)}$	—	—	3 ^a	0.3 ^a	—	1	—	—	—	—	V
	—	—	5 ^a	0.5 ^a	—	—	—	0.5	—	—	
	—	—	8 ^a	0.8 ^a	—	—	—	—	—	1.5	
	—	—	15 ^a	3 ^a	—	—	—	4	—	—	
	—	—	15 ^a	5 ^a	—	4	—	—	—	—	
—	—	16 ^a	4 ^a	—	—	—	—	—	4		
h_{ie} $f = 1 \text{ kHz}$	4	—	1	—	10	—	10	—	10	—	
f_T	4	—	1	—	—	—	—	—	800	—	kHz
$ h_{ie} $ $f = 0.4 \text{ MHz}$	4	—	1	—	2	—	2	—	2	—	
f_{hfe}	4	—	1	—	10	—	10	—	—	—	kHz
$I_{S/B}$ $t_p = 1 \text{ s}$ nonrep.	40	—	—	—	—	—	—	—	2.9	—	A
	45	—	—	—	2.55	—	—	—	—	—	
	80	—	—	—	—	—	1.87	—	—	—	
$R\theta_{JC}$	—	—	—	—	—	1.5	—	1.17	—	1.5	$^\circ\text{C/W}$

* In accordance with JEDEC registration data formats JS-6 RDF-2; 2N6253, 2N6254, 2N6371.

^aPulsed: Pulse duration = 300 μs , duty factor = 1.8%.

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General-Purpose Power Transistors

01E 17436 D T-33-13

2N6253, 2N6254, 2N6371

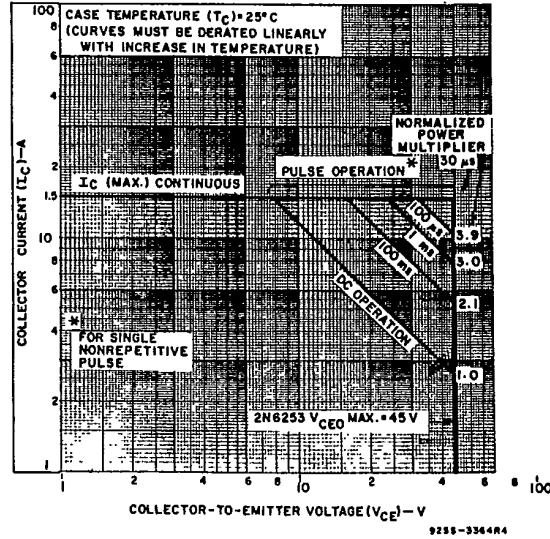


Fig. 1 - Maximum operating areas for 2N6253.

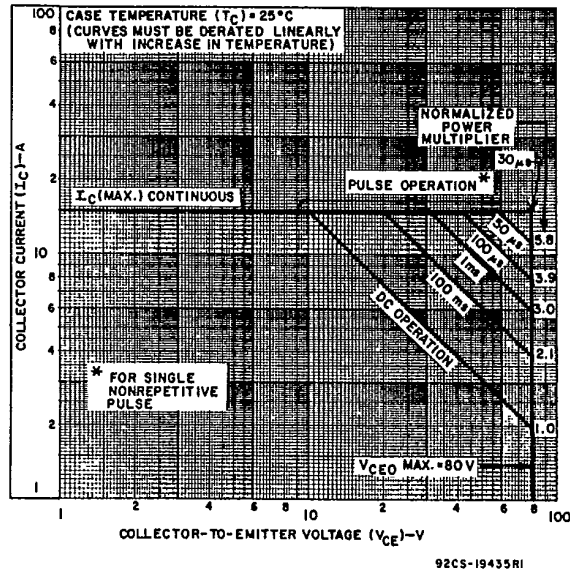


Fig. 2 - Maximum operating areas for 2N6254.

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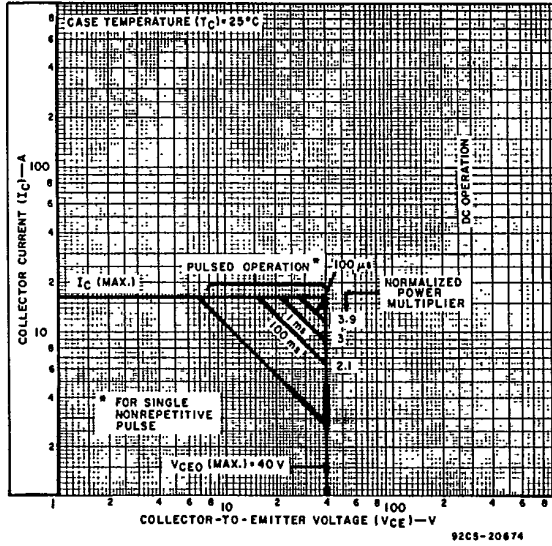


Fig. 3 - Maximum safe-area-of-operation at case temperature of 25°C for 2N6371.

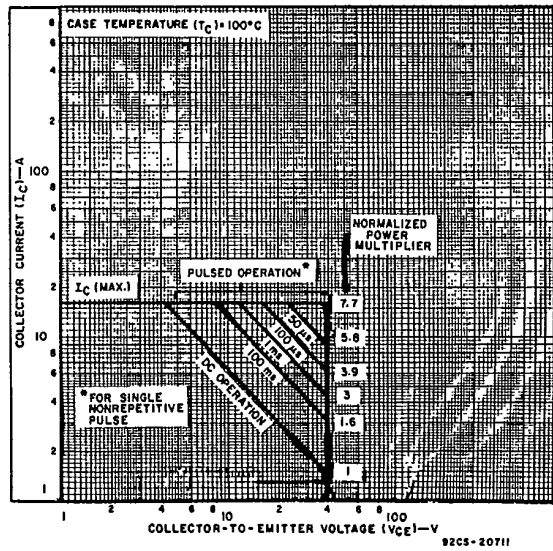


Fig. 4 - Maximum safe-area-of-operation at case temperature of 100°C for 2N6371.

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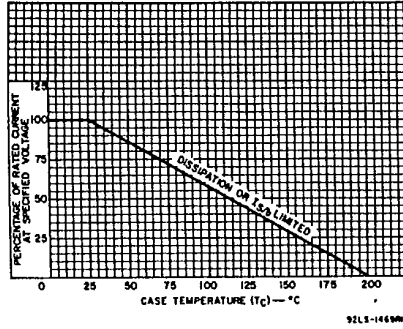


Fig. 5 - Current derating curve for all types.

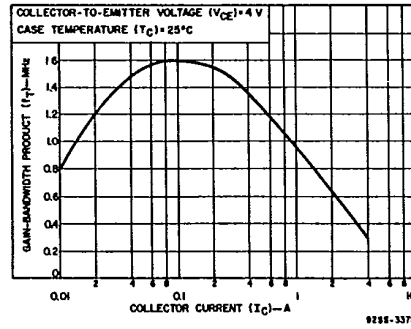


Fig. 6 - Typical gain-bandwidth product for all types.

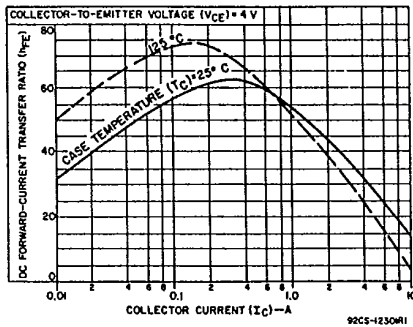


Fig. 7 - Typical dc-beta characteristics for 2N6371.

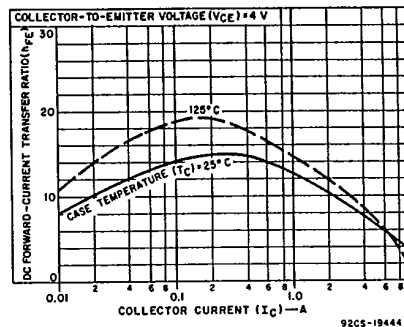


Fig. 8 - Typical dc-beta characteristics for 2N6253.

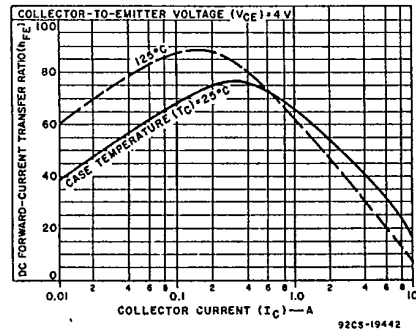


Fig. 9 - Typical dc-beta characteristics for 2N6254.

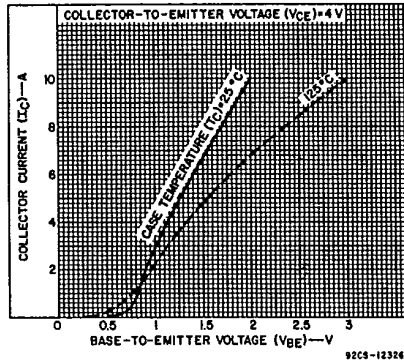


Fig. 10 - Typical transfer characteristics for 2N6253.

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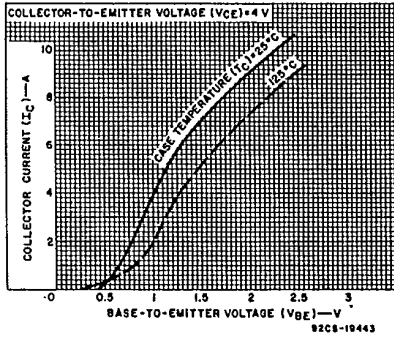


Fig. 11 - Typical transfer characteristics for 2N6254.

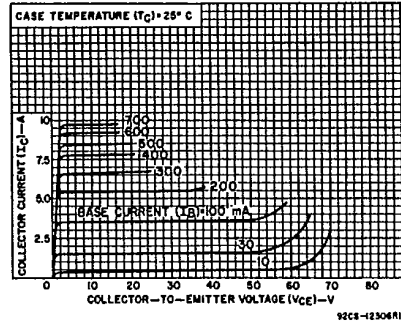


Fig. 12 - Typical output characteristics for 2N6371.

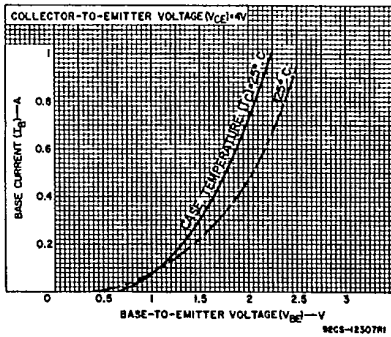


Fig. 13 - Typical Input characteristics for 2N6371.

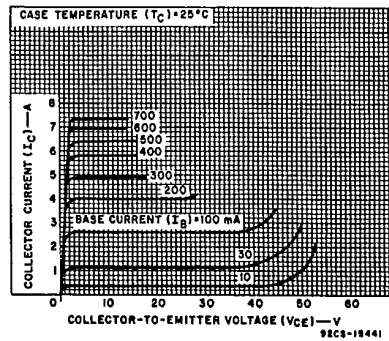


Fig. 14 - Typical output characteristics for 2N6253.

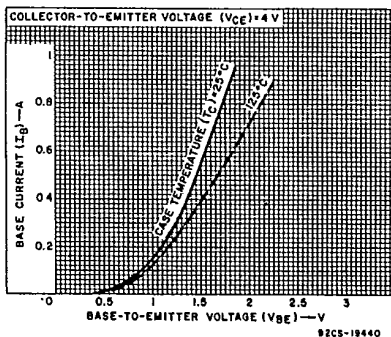


Fig. 15 - Typical Input characteristics for 2N6253.

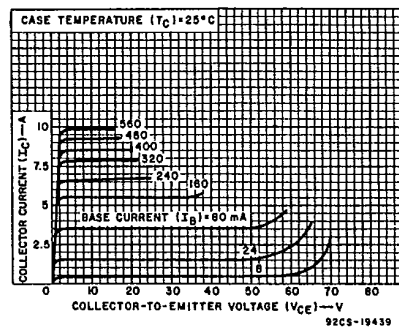


Fig. 16 - Typical output characteristics for 2N6254.

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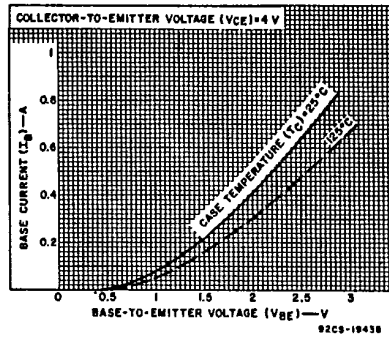


Fig. 17 - Typical Input characteristics for 2N6254.