RCA
Solid State
Division

Power Transistors

RCA1E02
RCA1E03

JEDEC TO-66 H-1340

Silicon Transistors for Audio-Frequency Linear-Amplifier Applications

N-P-N RCA1E02

P-N-P RCA1E03

TERMINAL CONNECTIONS

Pin 1 - Base
Pin 2 - Emitter
Mounting Flange, Case - Collector

RCA1E02 and RCA1E03 are silicon n-p-n and p-n-p transistors, respectively. These complementary devices are especially characterized for audio-amplifier applications. They may be used singly or as a complementary pair in complementary- or quasi-complementary-symmetry circuits, and are particularly useful as drivers or predrivers. They may also be used in audio power amplifiers, linear modulators, servo amplifiers, and operational amplifiers. The units are supplied in the JEDEC TO-66 package.

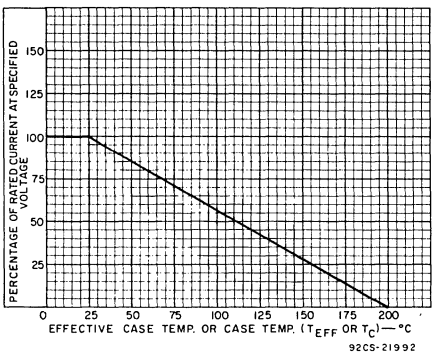

Fig.1 – Derating curve for all types.

MAXIMUM RATINGS, *Absolute-Maximum Values:*

		RCA1E02	RCA1E03	
COLLECTOR-TO-BASE VOLTAGE	V_{CBO}	200	−200	V
COLLECTOR-TO-EMITTER VOLTAGE:				
With base open	V_{CEO}	175	−175	V
With external base-to-emitter resistance (R_{BE}) = 100 Ω	V_{CER}	200	−200	V
EMITTER-TO-BASE VOLTAGE	V_{EBO}	5	−5	V
COLLECTOR CURRENT	I_C	2	−2	A
BASE CURRENT	I_B	1	−1	A
TRANSISTOR DISSIPATION:	P_T			
At case temperatures up to 25°C		35	35	W
At case temperatures above 25°C		← *See Fig.1* →		
TEMPERATURE RANGE:				
Storage and Operating (Junction)		← −65 to +200 →		°C
PIN TEMPERATURE (During Soldering):				
At distances ≥ 1/32 in. (0.8 mm) from case for 10 s max.		← 230 →		°C

Type RCA1E02
Package: JEDEC TO-66
Construction: Silicon n-p-n, double-epitaxial

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

CHARACTERISTIC	SYMBOL	TEST CONDITIONS	LIMITS		UNITS
			MIN.	MAX.	
Collector Cutoff Current: With external base-to-emitter resistance (R_{BE})	I_{CER}	V_{CE} = 120 V, R_{BE} = 100 Ω	–	100	μA
Emitter Cutoff Current: With collector open	I_{EBO}	V_{EB} = 5 V, I_C = 0	–	1	mA
Collector-to-Emitter Voltage: With base open	V_{CEO}	I_C = 0.1 A, I_B = 0	175	–	V
Collector-to-Emitter Voltage: With external base-to-emitter resistance (R_{BE})	V_{CER}	I_C = 0.1 A, R_{BE} = 100 Ω	200	–	V
DC Forward-Current Transfer Ratio	h_{FE}	I_C = 0.3 A, V_{CE} = 2 V	30	150	
Base-to-Emitter Voltage	V_{BE}	I_C = 0.3 A, V_{CE} = 2 V	–	1	V
Second-Breakdown Collector Current: With base forward biased	$I_{S/b}$	V_{CE} = 80 V, t = 0.4 s	0.4	–	A

For characteristics curves and test conditions, refer to published data for prototype 2N3583 (File 138).

Type RCA1E03
Package: JEDEC TO-66
Construction: Silicon p-n-p, epitaxial

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

CHARACTERISTIC	SYMBOL	TEST CONDITIONS	LIMITS		UNITS
			MIN.	MAX.	
Collector Cutoff Current: With external base-to-emitter resistance (R_{BE})	I_{CER}	V_{CE} = −120 V, R_{BE} = 100 Ω	–	−100	μA
Emitter Cutoff Current: With collector open	I_{EBO}	V_{EB} = −5 V, I_C = 0	–	−1	mA
Collector-to-Emitter Voltage: With base open	V_{CEO}	I_C = −0.1 A, I_B = 0	−175	–	V
Collector-to-Emitter Voltage: With external base-to-emitter resistance (R_{BE})	V_{CER}	I_C = −0.1 A, R_{BE} = 100 Ω	−200	–	V
DC Forward-Current Transfer Ratio	h_{FE}	I_C = −0.3 A, V_{CE} = −2 V	30	150	
Base-to-Emitter Voltage	V_{BE}	I_C = −0.3 A, V_{CE} = −2 V	–	−1	V
Second-Breakdown Collector Current: With base forward biased	$I_{S/b}$	V_{CE} = −80 V, t = 0.4 s	−0.25	–	A

For characteristics curves and test conditions, refer to published data for prototype 2N6211 (File 507).