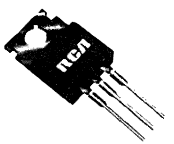
RCA Solid State Division

Power Transistors

41501



JEDEC TO-220AB

H-1535R1

Epitaxial-Base, Silicon P-N-P VERSAWATT Transistor

General-Purpose Medium-Power Type for Switching and Amplifier Applications

Features

- **Low saturation voltages**
- **VERSAWATT package (green molded silicone plastic)**
- **Maximum safe-area-of-operation curve specified for dc operation**

RCA-41501 is an epitaxial-base silicon p-n-p transistor supplied in a VERSAWATT package. It is intended for a wide variety of medium-power switching and amplifier applications, such as series and shunt regulators and driver and output stages of high-fidelity amplifiers.

TERMINAL CONNECTIONS

Terminal No. 1 – Base
Terminal No. 2 – Collector
Terminal No. 3 – Emitter
Terminal No. 4 – Collector

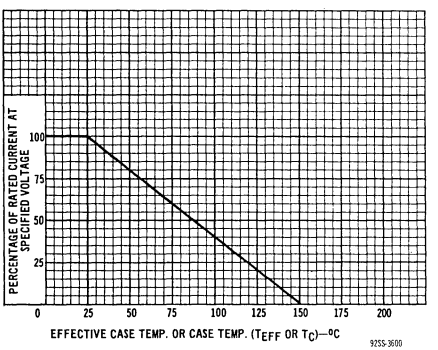


Fig. 1– Derating curve.

MAXIMUM RATINGS, *Absolute-Maximum Values:*

COLLECTOR-TO-BASE VOLTAGE	V_{CBO}	−35	V
COLLECTOR-TO-EMITTER SUSTAINING VOLTAGE:			
With external base-to-emitter resistance (R_{BE}) = 100 Ω	$V_{CER}(sus)$	−35	V
With base open	$V_{CEO}(sus)$	−25	V
EMITTER-TO-BASE VOLTAGE	V_{EBO}	−3	V
COLLECTOR CURRENT	I_C	−7	A
BASE CURRENT	I_B	−3	A
TRANSISTOR DISSIPATION:	P_T		
At case temperatures up to 25°C		40	W
At ambient temperatures up to 25°C		1.8	W
At case temperatures above 25°C	Derate linearly	0.32 W/°C, or see Fig. 1.	
At ambient temperatures above 25°C	Derate linearly	0.0144	W/°C
TEMPERATURE RANGE:			
Storage and operating (Junction)		−65 to +150	°C
LEAD TEMPERATURE (During soldering):			
At distance ≥ 1/8 in. (3.17 mm) from seating plane for 10 s max.		235	°C

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

CHARACTERISTIC	SYMBOL	TEST CONDITIONS				LIMITS		UNITS
		VOLTAGE V dc		CURRENT A dc				
		V_{CE}	V_{BE}	I_C	I_B	Min.	Max.	
Collector Cutoff Current: With external base-to-emitter resistance (R_{BE}) = 100 Ω	I_{CER}	−30				–	−0.25	mA
Emitter Cutoff Current	I_{EBO}		3	0		–	−1	mA
DC Forward-Current Transfer Ratio	h_{FE}	−4		−1[a]		25	–	
Collector-to-Emitter Sustaining Voltage: With base open	$V_{CEO}(sus)$			−0.1[a]	0	−25[b]	–	V
With external base-to-emitter resistance (R_{BE}) = 100 Ω	$V_{CER}(sus)$			−0.1[a]		−35[b]	–	V
Base-to-Emitter Voltage	V_{BE}	−4		−1[a]		–	−1.5	V
Collector-to-Emitter Saturation Voltage	$V_{CE}(sat)$			−1[a]	−0.1	–	−1	V
Collector-to-Base Capacitance (f = 1 MHz, V_{CB} = −10 V)	C_{ob}			0		–	250	pF
Thermal Resistance Junction-to-Case	$R_{\theta JC}$					–	3.125	°C/W
Junction-to-Ambient	$R_{\theta JA}$					–	70	°C/W

[a] Pulsed, pulse duration = 300 μs, duty factor = 1.8%

[b] *CAUTION: Sustaining voltages $V_{CEO}(sus)$, and $V_{CEX}(sus)$ MUST NOT be measured on a curve tracer.*

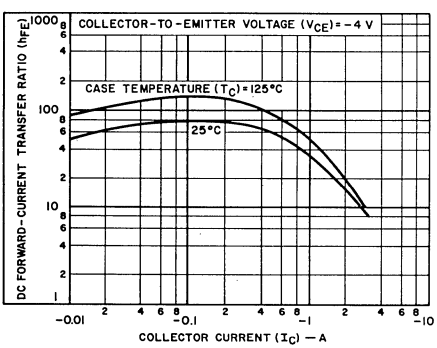


Fig. 2 — Typical dc beta characteristics.

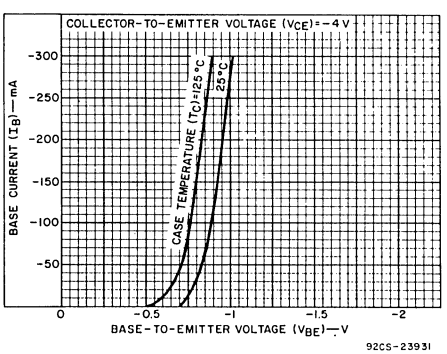


Fig. 3 — Typical input characteristics.

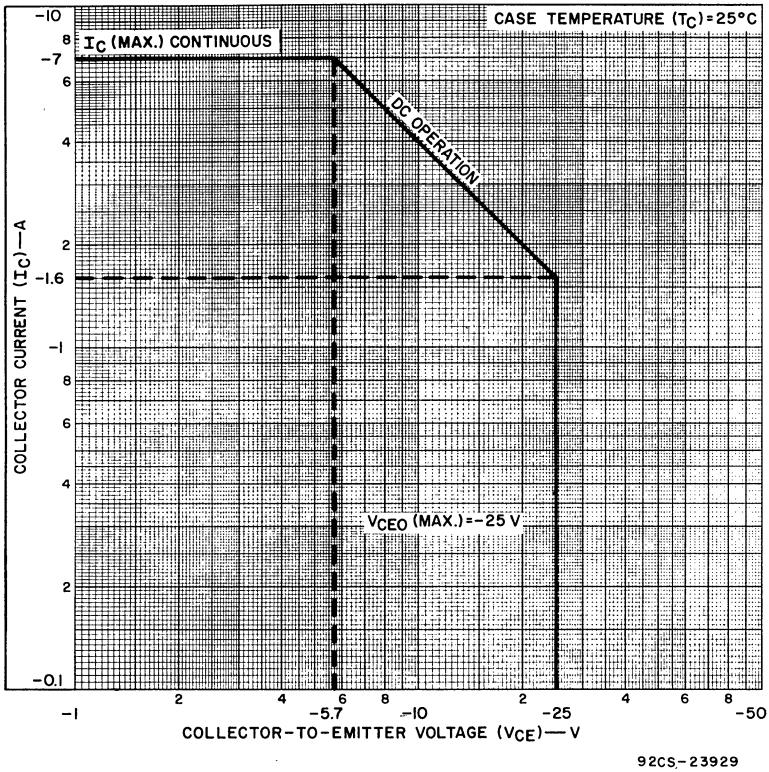


Fig. 4 — Maximum operating areas.

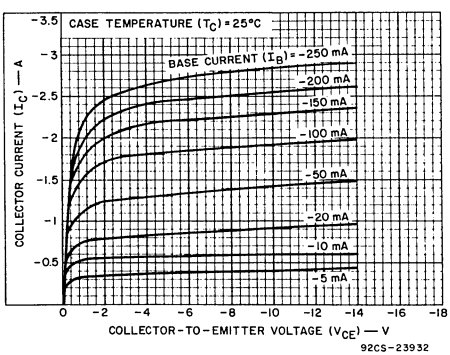


Fig. 5 — Typical output characteristics

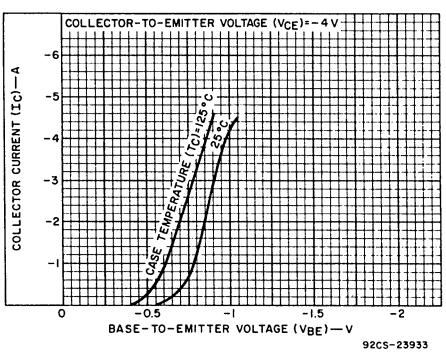


Fig. 6 — Typical transfer characteristics.