

Silicon NPN Transistor

2N1484

General Purpose Transistor

100V / 3A

DATASHEET

OEM –RCA

Source: RCA Databook 1975

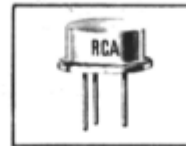
Power Transistors

**2N1483 2N1484
2N1485 2N1486**

RCA-2N1483-2N1486 are diffused-junction power transistors of the silicon n-p-n type. These transistors are intended for a wide variety of applications in industrial and military equipment. They are particularly useful in power-switching circuits such as in dc-to-dc converters, inverters, choppers, solenoid and relay controls; in oscillator, regulator, and pulse amplifier circuits; and as class-A and class-B push-pull audio and servo amplifiers.

These transistors feature high beta at high current, and excellent high temperature performance.

Intermediate-Power Types



JEDEC-TO-8

- Maximum dissipation rating of 25 watts at a case temperature of 25°C
- 2N1485 and 2N1486 have a maximum saturation resistance of 1 ohm

Maximum Ratings, Absolute-Maximum Values:

	2N1483 2N1485	2N1484 2N1486		
COLLECTOR-TO-BASE VOLTAGE	60	100	max.	volts
COLLECTOR-TO-EMITTER VOLTAGE:				
With base open (sustaining voltage)	40	55	max.	volts
With emitter-to-base reverse biased ($V_{EB} = 1.5$ volts)	60	100	max.	volts
EMITTER-TO-BASE VOLTAGE	12	12	max.	volts
COLLECTOR CURRENT	3	3	max.	amp
EMITTER CURRENT	-3.5	-3.5	max.	amp
BASE CURRENT	1.5	1.5	max.	amp
TRANSISTOR DISSIPATION:				
(See Rating Chart Fig. 3):				
At case temperature of 25°C	25	25	max.	watts
At case temperature of 100°C	14.1	14.1	max.	watts
TEMPERATURE RANGE:				
Operating and Storage	-65 to +200			°C

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

CHARACTERISTIC	SYMBOL	TEST CONDITIONS				LIMITS				UNITS
		VOLTAGE V dc		CURRENT mA dc		2N1483		2N1484		
		V_{CB}	V_{CE}	I_C	I_B	Min.	Max.	Min.	Max.	
Collector Cutoff Current: With emitter open At $T_C = 150^\circ\text{C}$	I_{CBO}	30				–	15	–	15	μA
		30				–	750	–	750	
Emitter Cutoff Current $V_{EB} = 12\text{ V}$	I_{EBO}			0		–	15	–	15	μA
DC Forward-Current Transfer Ratio	h_{FE}		4	750 ^a		20	60	20	60	
Collector-to-Emitter Sustaining Voltage: With base open	$V_{CEO(sus)}$			100 ^a	0	40	–	55	–	V
With base-emitter junction reverse-biased ($V_{BE} = -1.5\text{ V}$)	V_{CEX}			0.25		60	–	100	–	V
Base-to-Emitter Voltage	V_{BE}		4	750 ^a		–	3.5	–	3.5	V
Collector-to-Emitter Saturation Resistance	$r_{CE(sat)}$			750	75	–	2.67	–	2.67	Ω
Collector-to-Base Capacitance	C_{ob}	40				175 (typ.)	175 (typ.)			pF
Thermal Time Constant	τ_1					10 (typ.)	10 (typ.)			ms
Alpha Cutoff Frequency	f_{ab}	28		5		1.25 (typ.)	1.25 (typ.)			MHz
Saturated Switching Time										
Delay time	t_d					0.2 (typ.)	0.2 (typ.)			μs
Rise time	t_r					1 (typ.)	1 (typ.)			
Storage time	t_s					0.8 (typ.)	0.8 (typ.)			
Fall time	t_f					1.1 (typ.)	1.1 (typ.)			
Thermal Resistance: Junction-to-case	$R_{\theta JC}$					–	7	–	7	$^\circ\text{C/W}$
Junction-to-ambient	$R_{\theta JA}$					–	100	–	100	

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

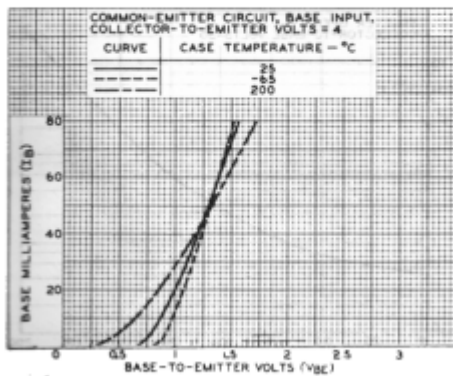


Fig. 1—Typical input characteristics for all types.

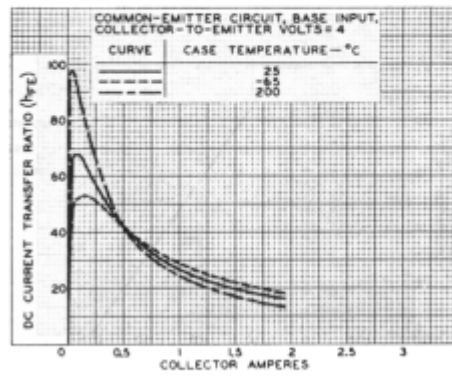


Fig. 2—Typical operation characteristics for all types.

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

CHARACTERISTIC	SYMBOL	TEST CONDITIONS				LIMITS				UNITS
		VOLTAGE V dc		CURRENT mA dc		2N1485		2N1486		
		V_{CB}	V_{CE}	I_C	I_B	Min.	Max.	Min.	Max.	
Collector Cutoff Current: With emitter open At $T_C = 150^\circ\text{C}$	I_{CBO}	30				—	15	—	15	μA
		30				—	750	—	750	
Emitter Cutoff Current $V_{EB} = 12\text{ V}$	I_{EBO}			0		—	15	—	15	μA
DC Forward-Current Transfer Ratio	h_{FE}		4	750 ^a		35	100	35	100	
Collector-to-Emitter Sustaining Voltage: With base open	$V_{CEO(sus)}$			100 ^a	0	40	—	55	—	V
With base-emitter junction reverse-biased ($V_{BE} = -1.5\text{ V}$)	V_{CEX}			0.25		60	—	100	—	
Base-to-Emitter Voltage	V_{BE}		4	750 ^a		—	2.5	—	2.5	V
Collector-to-Emitter Saturation Resistance	$r_{CE(sat)}$			750	40	—	1	—	1	Ω
Collector-to-Base Capacitance	C_{ob}	40				175 (typ.)	175 (typ.)			μF
Thermal Time Constant	τ_1					10 (typ.)	10 (typ.)			ms
Alpha Cutoff Frequency	f_{ab}	28		5		1.25 (typ.)	1.25 (typ.)			MHz
Saturated Switching Time										
Delay time	t_d					0.2 (typ.)	0.2 (typ.)			μs
Rise time	t_r					1 (typ.)	1 (typ.)			
Storage time	t_s					0.8 (typ.)	0.8 (typ.)			
Fall time	t_f					1.1 (typ.)	1.1 (typ.)			
Thermal Resistance: Junction-to-case	$R_{\theta JC}$					—	7	—	7	$^\circ\text{C/W}$
Junction-to-ambient	$R_{\theta JA}$					—	100	—	100	

^a Pulsed, pulse duration = 300 μs , duty factor = 1.8%.

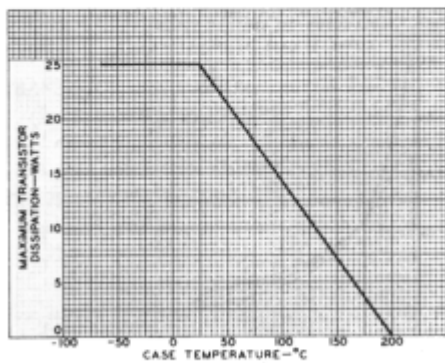


Fig. 3—Rating chart for all types.

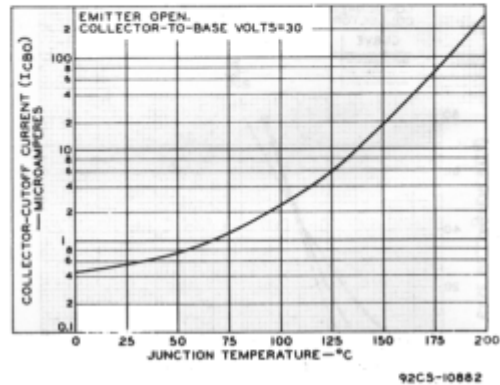


Fig. 4—Typical operation characteristics for all types.

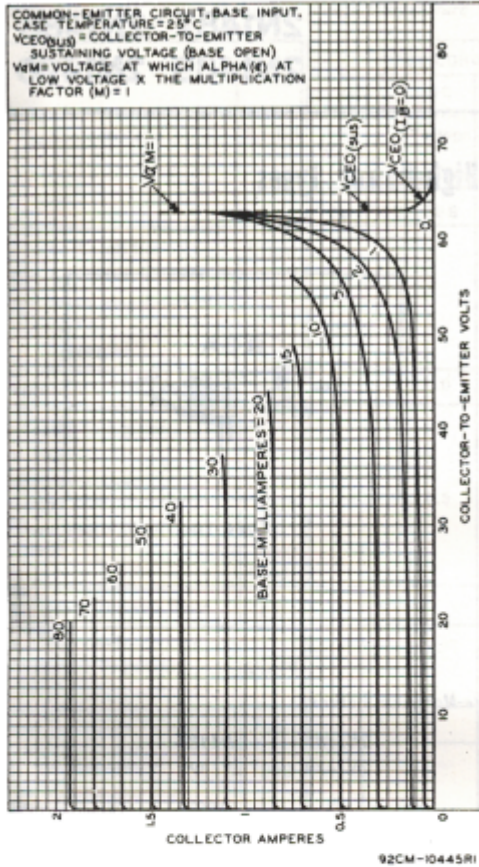
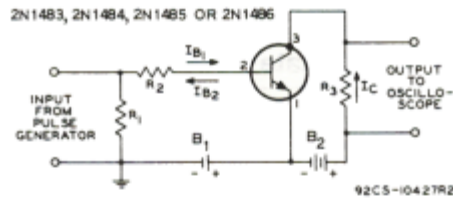
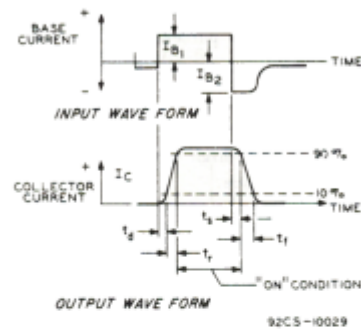


Fig. 5—Typical collector characteristics for all types.



$B_1 = 8.5$ volts $R_1 = 50$ ohms, 1 watt
 $B_2 = 12$ volts $R_2 = 220$ ohms, 1 watt
 $R_3 = 15.9$ ohms, 2 watts



Typical Operation of the 2N1483 - 2N1486

At Case Temperature (T_C) = 25°C:

DC Supply Voltage (B_2)	12	V
DC Base Bias Voltage (B_1)	-8.5	V
Generator Resistance	50	Ω
"On" DC Collector Current	750	mA
"Turn-On" Base Current (I_{B1})	65	mA
"Turn-Off" Base Current (I_{B2})	-35	mA

Fig. 6—Typical power-switching circuit.

TERMINAL CONNECTIONS

- Lead 1 - Emitter
- Lead 2 - Base
- Case, Lead 3 - Collector