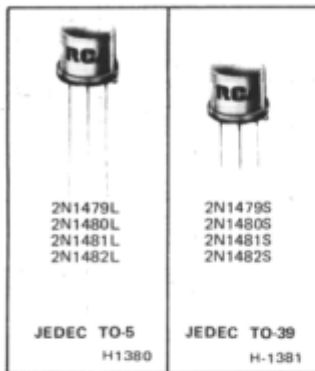


## Power Transistors

2N1479 2N1480  
2N1481 2N1482

Silicon N-P-N  
Power Transistors

General-Purpose Types for  
Medium-Power Applications

## Features:

- High-temperature characterization
- High dc beta at 200 mA
- Full switching-time characterization at 200 mA

These devices are available with either 1/8-inch leads (TO-5 package) or 1/4-inch leads (TO-39 package). The longer-lead versions are specified by suffix "L" after the type number; the shorter-lead versions are specified by suffix "S" after the type number.

RCA-2N1479-2N1482 are diffused-junction silicon n-p-n power transistors. 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. They employ the JEDEC TO-39 or TO-5 hermetic package.

## Maximum Ratings, Absolute-Maximum Values:

	2N1479	2N1480	
	2N1481	2N1482	
*COLLECTOR-TO-BASE VOLTAGE .....	$V_{CBO}$	60	100 V
*COLLECTOR-TO-EMITTER VOLTAGE:			
With base open, sustaining .....	$V_{CEO(sus)}$	40	55 V
With emitter-to-base reverse biased ( $V_{EB} = 1.5$ volts) .....	$V_{CEX}$	60	100 V
*EMITTER-TO-BASE VOLTAGE .....	$V_{EB}$	12	12 V
*COLLECTOR CURRENT .....	$I_C$	1.5	1.5 A
*EMITTER CURRENT .....	$I_E$	-1.75	-1.75 A
*BASE CURRENT .....	$I_B$	1	1 A
*TRANSISTOR DISSIPATION:	$P_T$		
(See Rating Chart Fig. 1):			
At case temperature of 25° C .....		5	5 W
At case temperature of 100° C .....		2.86	2.86 W
TEMPERATURE RANGE:			
Operating and Storage .....		-65 to +200	°C

\*In accordance with JEDEC registration data



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

CHARACTERISTIC	SYMBOL	TEST CONDITIONS						LIMITS								UNITS
		VOLTAGE V dc			CURRENT mA dc			2N1479		2N1480		2N1481		2N1482		
		$V_{CB}$	$V_{CE}$	$V_{EB}$	$I_C$	$I_B$	$I_E$	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	
Collector Cutoff Current: $T_C = 150^\circ\text{C}$	$I_{CBO}$	30					0	10	10	10	10	10	10	10	$\mu\text{A}$	
Emitter Cutoff Current	$I_{EBO}$			12	0			10	10	10	10	10	10	10	$\mu\text{A}$	
Collector-To-Emitter Voltage: With base-emitter junction reverse-biased	$V_{CEX}$			1.5	0.25		60	100	60	100	60	100	60	100	V	
With base open, sustaining	$V_{CEO(sus)}$				50	0	40	55	40	55	40	55	40	55		
Base-To-Emitter Voltage	$V_{BE}$		4		200			3	3	3	3	3	3	3	V	
DC Current Transfer Ratio	$h_{FE}$		4		200		20	60	20	60	35	100	35	100		
Small-Signal Current Transfer Ratio	$h_{fe}$		4		5		50 Typ.	50 Typ.	50 Typ.	50 Typ.	50 Typ.	50 Typ.	50 Typ.	50 Typ.		
DC Collector-To-Emitter Saturation Resistance	$r_{CE(sat)}$				200	20		7	7			7	7	7	$\Omega$	
Collector-To-Base Capacitance	$C_{ob}$	40					150 Typ.	150 Typ.	150 Typ.	150 Typ.	150 Typ.	150 Typ.	150 Typ.	150 Typ.	pF	
Thermal Time Constant	$\tau_1$						10 Typ.	10 Typ.	10 Typ.	10 Typ.	10 Typ.	10 Typ.	10 Typ.	10 Typ.	ms	
Alpha-Cutoff Frequency	$f_{\alpha b}$	28			5		1.5 Typ.	1.5 Typ.	1.5 Typ.	1.5 Typ.	1.5 Typ.	1.5 Typ.	1.5 Typ.	1.5 Typ.	MHz	
Switching Time:																
Delay Time	$t_d^*$						0.2 Typ.	0.2 Typ.	0.2 Typ.	0.2 Typ.	0.2 Typ.	0.2 Typ.	0.2 Typ.	0.2 Typ.	$\mu\text{s}$	
Rise Time	$t_r^*$						1 Typ.	1 Typ.	1 Typ.	1 Typ.	1 Typ.	1 Typ.	1 Typ.	1 Typ.		
Storage Time	$t_s^*$						0.6 Typ.	0.6 Typ.	0.6 Typ.	0.6 Typ.	0.6 Typ.	0.6 Typ.	0.6 Typ.	0.6 Typ.		
Fall Time	$t_f^*$						1 Typ.	1 Typ.	1 Typ.	1 Typ.	1 Typ.	1 Typ.	1 Typ.	1 Typ.		
Thermal Resistance:															$^\circ\text{C/W}$	
Junction-to-case	$R_{\theta JC}$						35	35	35	35	35	35	35	35		
Junction-to-free air	$R_{\theta JFA}$						200	200	200	200	200	200	200	200		

\*In accordance with JEDEC registration data

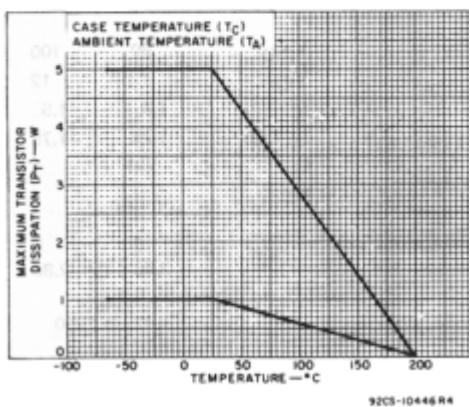
\* $I_C = 200\text{ mA}$ ,  $I_{B1} = 20\text{ mA}$ ,  $I_{B2} = -8.5\text{ mA}$ ; see Figs. 6 and 7.

Fig. 1 — Derating chart for all types.

## TERMINAL CONNECTIONS

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



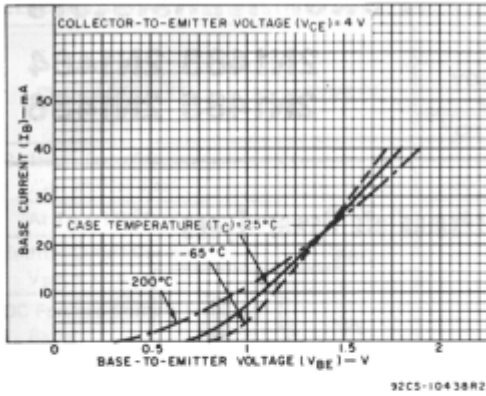


Fig. 2 - Typical input characteristics for all types.

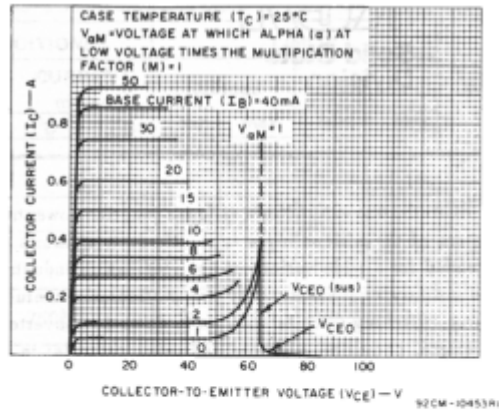


Fig. 3 - Typical output characteristics for all types.

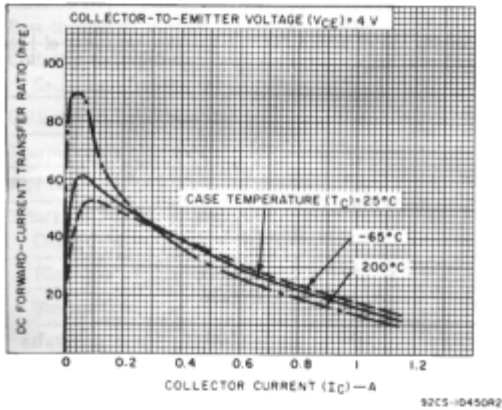


Fig. 4 - Typical dc beta characteristics for all types.

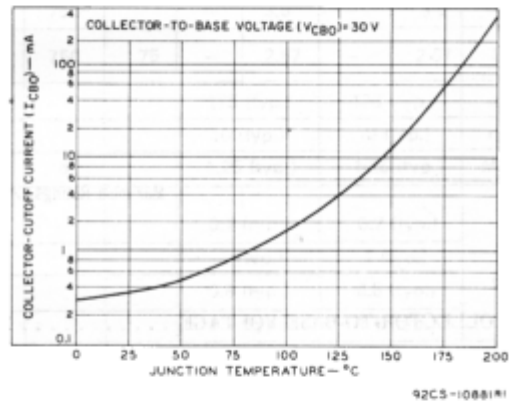


Fig. 5 - Typical leakage characteristics for all types.

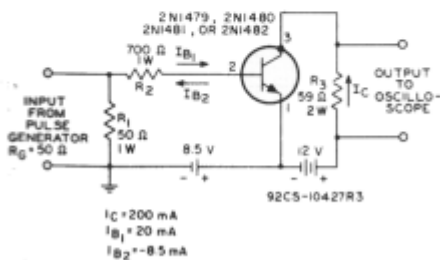


Fig. 6 - Test circuit for measurement of saturated switching times.

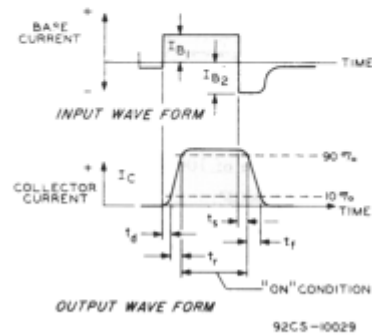


Fig. 7 - Oscilloscope display for measurement of switching times (test circuit in Fig. 6).

