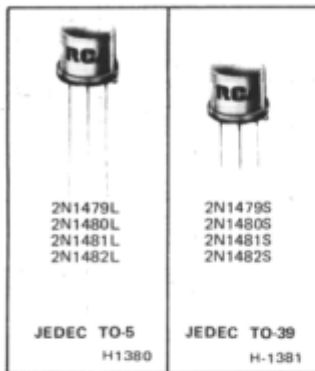


Power Transistors

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 1/2-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	μA	
Emitter Cutoff Current	I_{EBO}	30					0	500	500	500	500	500	500	500	μA	
Collector-To-Emitter Voltage: With base-emitter junction reverse-biased	V_{CEX}			1.5	0.25		60		100		60		100		V	
With base open, sustaining	$V_{CEO(sus)}$				50	0	40		55		40		55			
Base-To-Emitter Voltage	V_{BE}		4		200			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.			
DC Collector-To-Emitter Saturation Resistance	$r_{CE(sat)}$				200	20		7		7			7		Ω	
Collector-To-Base Capacitance	C_{ob}	40						150 Typ.	150 Typ.	150 Typ.	150 Typ.	150 Typ.	150 Typ.	150 Typ.	pF	
Thermal Time Constant	τ_1							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.	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.	μs	
Rise Time	t_r^*							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.		
Fall Time	t_f^*							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		
Junction-to-free air	$R_{\theta JFA}$							200		200		200		200		

*In accordance with JEDEC registration data

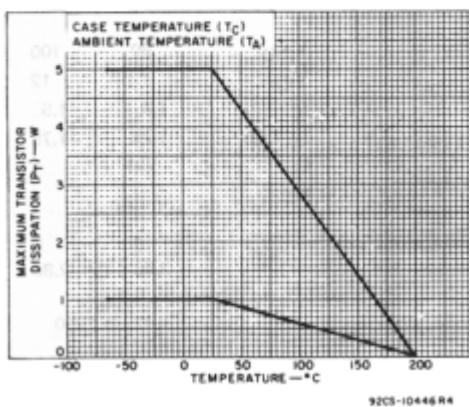
* $I_C = 200\text{ mA}$, $I_{B1} = 20\text{ mA}$, $I_{B2} = -8.5\text{ mA}$; see Figs. 6 and 7.

Fig. 1 — Derating chart for all types.

TERMINAL CONNECTIONS

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



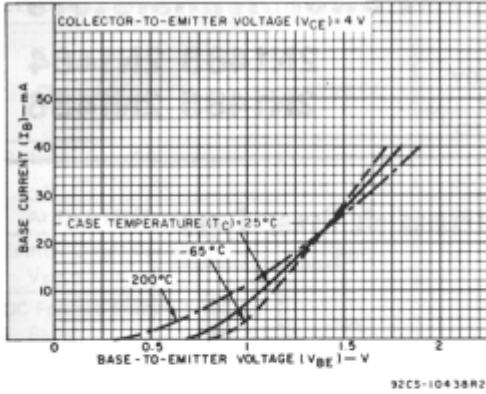


Fig. 2 - Typical input characteristics for all types.

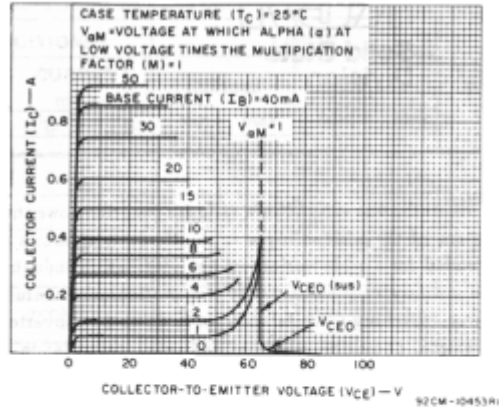


Fig. 3 - Typical output characteristics for all types.

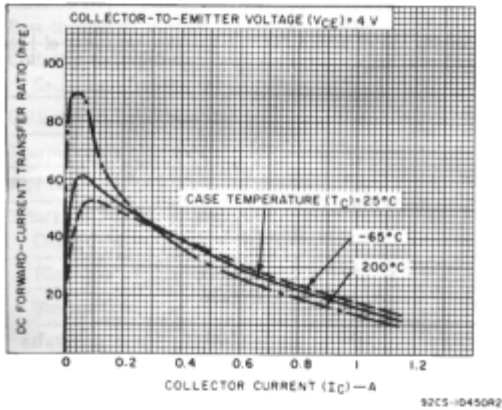


Fig. 4 - Typical dc beta characteristics for all types.

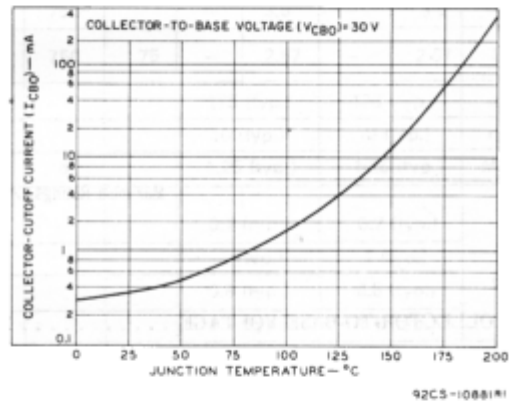


Fig. 5 - Typical leakage characteristics for all types.

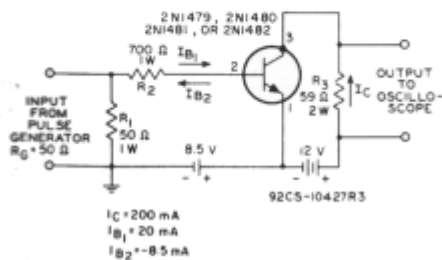


Fig. 6 - Test circuit for measurement of saturated switching times.

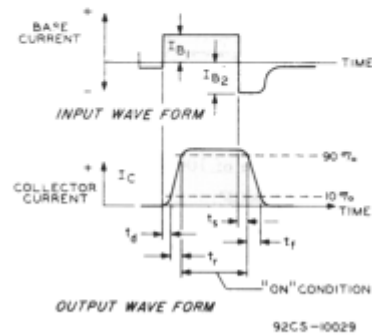


Fig. 7 - Oscilloscope display for measurement of switching times (test circuit in Fig. 6).

