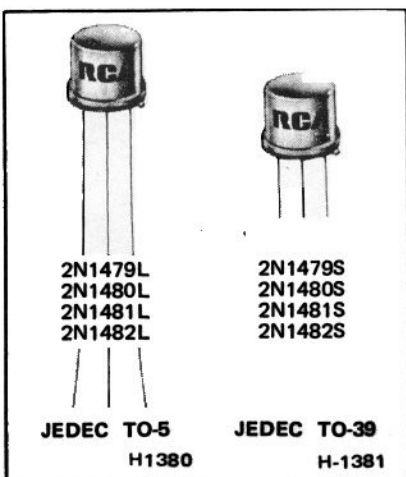




Silicon N-P-N Power Transistors

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 1½-inch leads (TO-5 package) or ½-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:

*COLLECTOR-TO-BASE VOLTAGE

*COLLECTOR-TO-EMITTER VOLTAGE:

With base open, sustaining

With emitter-to-base reverse biased

($V_{EB} = 1.5$ volts)

*EMITTER-TO-BASE VOLTAGE

*COLLECTOR CURRENT

*EMITTER CURRENT

*BASE CURRENT

*TRANSISTOR DISSIPATION:

(See Rating Chart Fig. 1):

At case temperature of 25° C

At case temperature of 100° C

TEMPERATURE RANGE:

Operating and Storage

*In accordance with JEDEC registration data

	2N1479	2N1480	
	2N1481	2N1482	
V_{CBO}	60	100	V
$V_{CEO(sus)}$	40	55	V
V_{CEX}	60	100	V
V_{EB}	12	12	V
I_C	1.5	1.5	A
I_E	-1.75	-1.75	A
I_B		1	A
P_T			
	5	5	W
	2.86	2.86	W
	-65 to +200		°C

2N1479-80-81-82 Silicon N-P-N Transistors

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°C	I _{CBO}	30					0		10		10		10		10	μA
Emitter Cutoff Current	I _{EBO}			12	0				10		10		10		10	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 _s				200 200	20 10			7		7		7		7	Ω
Collector-To-Base Capacitance	C _{ob}	40						150 Typ.		150 Typ.		150 Typ.		150 Typ.		pF
Thermal Time Constant	τ ₁							10 Typ.		10 Typ.		10 Typ.		10 Typ.		ms
Alpha-Cutoff Frequency	f _{αb}	28			5			1.5 Typ.		1.5 Typ.		1.5 Typ.		1.5 Typ.		MHz
Switching Time:																μs
Delay Time	t _d [°]							0.2 Typ.		0.2 Typ.		0.2 Typ.		0.2 Typ.		
Rise Time	t _r [°]							1 Typ.		1 Typ.		1 Typ.		1 Typ.		
Storage Time	t _s [°]							0.6 Typ.		0.6 Typ.		0.6 Typ.		0.6 Typ.		
Fall Time	t _f [°]							1 Typ.		1 Typ.		1 Typ.		1 Typ.		
Thermal Resistance: Junction-to-case	R _{θJC}								35		35		35		35	°C/W
Junction-to-free air	R _{θJFA}								200		200		200		200	

*In accordance with JEDEC registration data

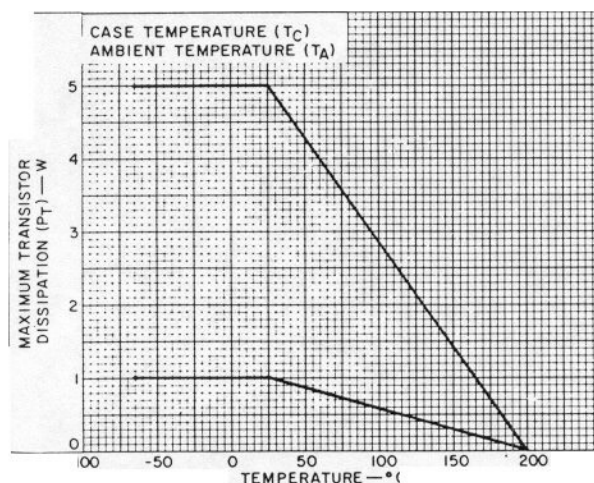
* $I_C = 200\text{ mA}$, $I_{B1} = 20\text{ mA}$, $I_{B2} = -8.5\text{ mA}$; see Figs. 6 and 7.

Fig. 1 — Derating chart for all types.

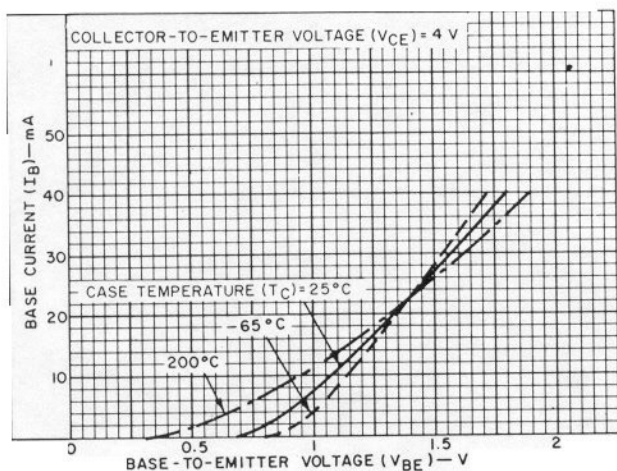


Fig. 2 - Typical input characteristics for all types.

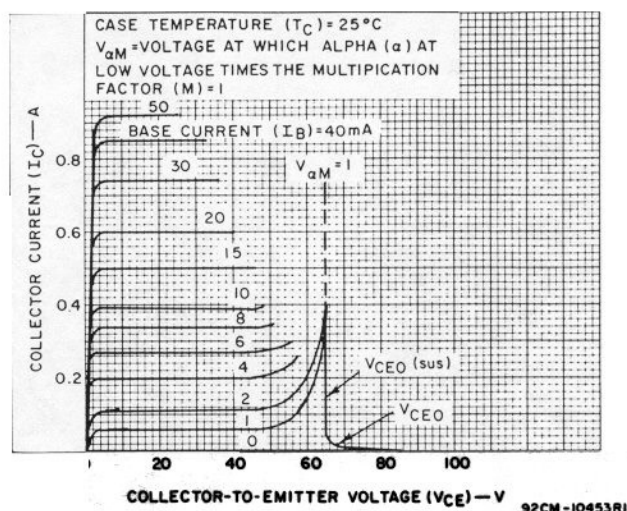


Fig. 3 - Typical output characteristics for all types.

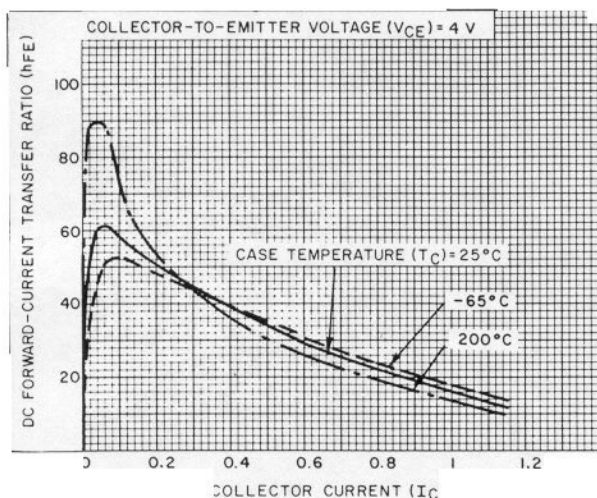


Fig. 4 - Typical dc beta characteristics for all types.

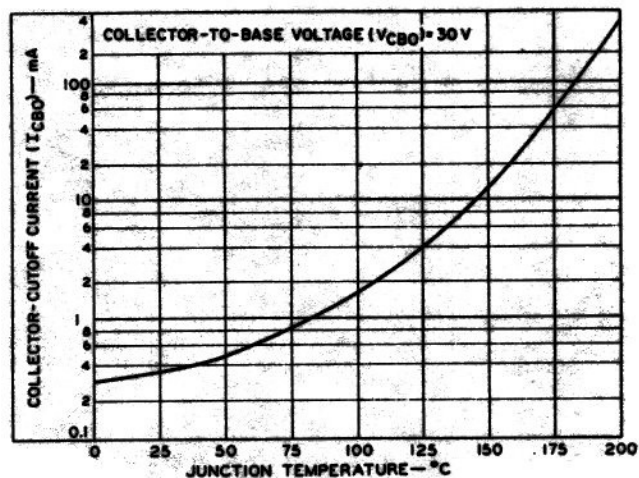


Fig. 5 - Typical leakage characteristics for all types.

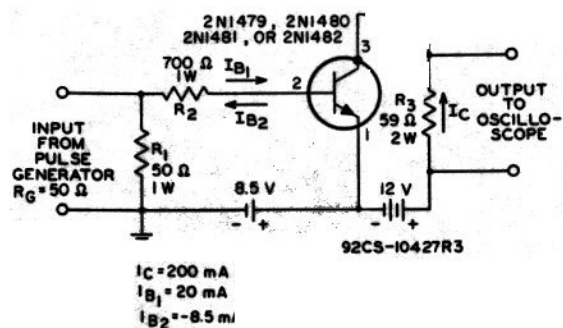


Fig. 6 - Test circuit for measurement of saturated switching times.

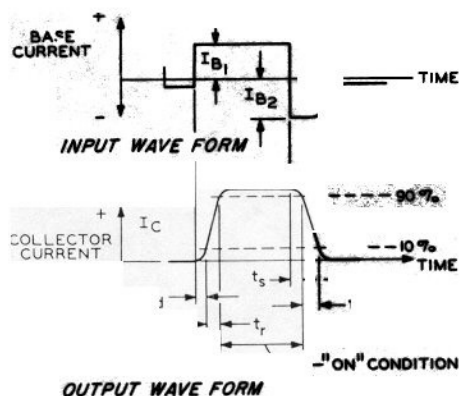
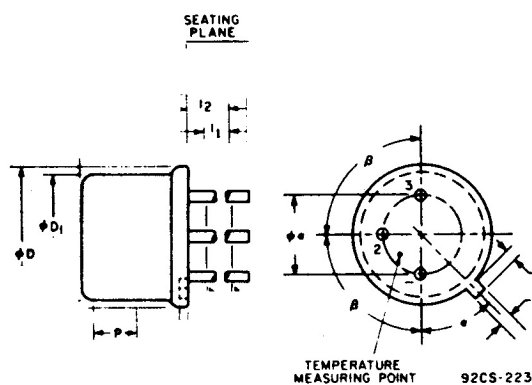


Fig. 7 - Oscilloscope display for measurement of switching times (test circuit in Fig. 6).

DIMENSIONAL OUTLINE FOR ALL TYPES



SYMBOL	INCHES		MILLIMETERS		NOTES
	MIN.	MAX.	MIN.	MAX.	
ϕa	0.190	0.210	4.83	5.33	
A	0.240	0.260	6.10	6.60	
ϕb	0.016	0.021	0.406	0.533	2
ϕb_2	0.016	0.019	0.406	0.483	2
ϕD	0.350	0.370	8.89	9.40	
ϕD_1	0.305	0.335	8.00	8.51	
h	0.009	0.041	0.229	1.04	
j	0.028	0.034	0.711	0.864	
k	0.029	0.040	0.737	1.02	3
L long lead	1.500		38.10		2
L short lead	0.500		12.70		2
I_1		0.050		1.27	2
I_2	0.250		6.35		2
P	0.100		2.54		1
Q					4
α	45° NOMINAL				
β	90° NOMINAL				

Note 1: This zone is controlled for automatic handling.
The variation in actual diameter within this zone shall not exceed 0.010 in. (0.254 mm).

Note 2: (Three leads) ϕb_2 applies between I_1 and I_2 .
 ϕb applies between I_2 and I_1 . Diameter is uncontrolled in I_1 .

Note 3: Measured from maximum diameter of the actual device.

Note 4: Details of outline in this zone optional.

TERMINAL CONNECTIONS

Lead 1 - Emitter

Lead 2 - Base

Case, Lead 3 - Collector

When incorporating RCA Solid State Devices in equipment, it is recommended that the designer refer to "Operating Considerations for RCA Solid State Devices", Form No. 1CE-402, available on request from RCA Solid State Division, Box 3200, Somerville, N.J. 08876.