Silicon NPN Transistor

2N1481

General Purpose Transistor

60V / 1,5A

DATASHEET

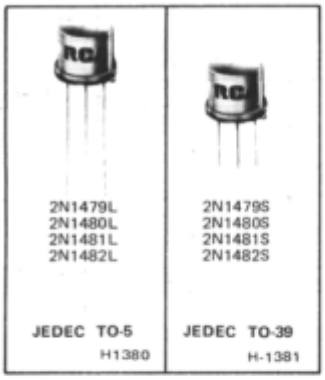
OEM –RCA

Source: RCA Databook 1SCD108C

Datasheet Rev. 1.3 – 04/19 – data without warranty / liability

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 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:*		**2N1479 2N1481**	**2N1480 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: (See Rating Chart Fig. 1):	P_T			
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:	I_{CBO}	30					0		10		10		10		10	μA
T_C = 150°C		30					0		500		500		500		500	
• 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	$r_{CE(sat)}$				200	20			7		7					Ω
					200	10							7		7	
• 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_{α_b}	28			5			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.		μs
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	$R_{\theta JC}$								35		35		35		35	°C/W
Junction-to-free air	$R_{\theta JFA}$								200		200		200		200	

*In accordance with JEDEC registration data

*I_C = 200 mA, I_{B_1} = 20 mA, I_{B_2} = −8.5 mA; see Figs. 6 and 7.

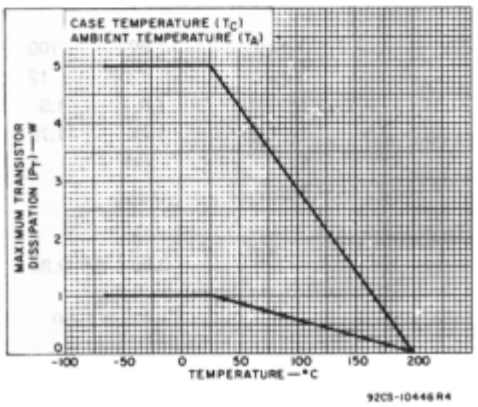


Fig.1 – Derating chart for all types.

TERMINAL CONNECTIONS

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

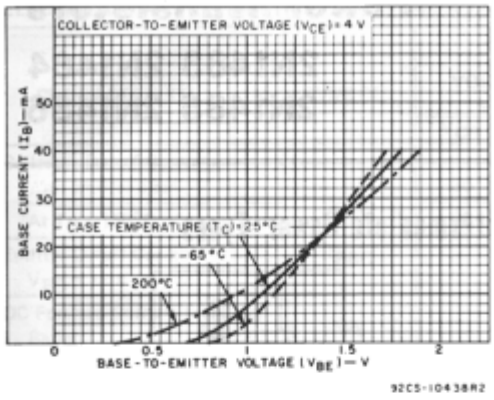


Fig.2 – Typical input characteristics for all types.

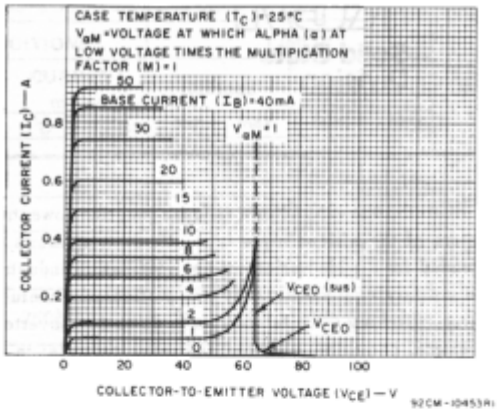


Fig.3 – Typical output characteristics for all types.

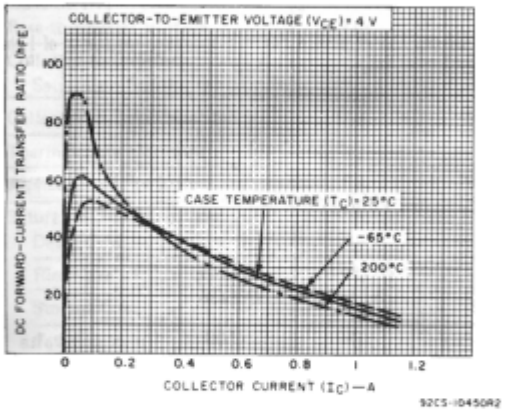


Fig.4 – Typical dc beta characteristics for all types.

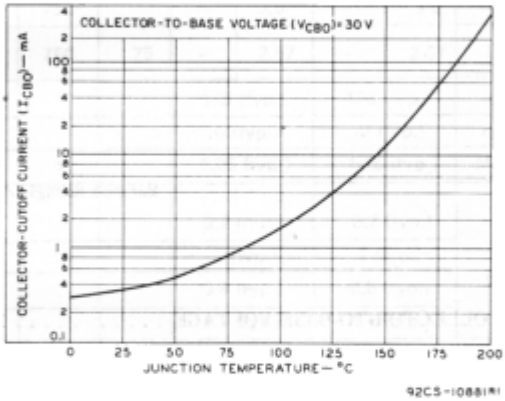


Fig.5 – Typical leakage characteristics for all types.

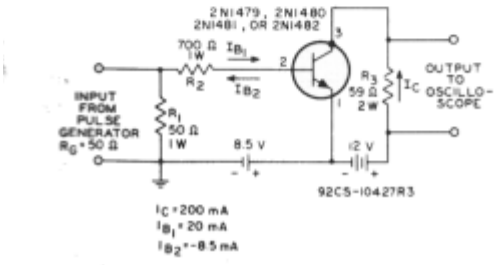


Fig.6 – Test circuit for measurement of saturated switching times.

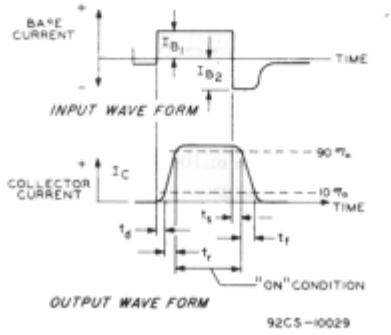


Fig. 7 – Oscilloscope display for measurement of switching times (test circuit in Fig. 6).