

NPN Transistors

2SD1950

■ Features

- Collector Current Capability $I_C=2A$
- Collector Emitter Voltage $V_{CE0}=25V$

■ Absolute Maximum Ratings $T_a = 25^\circ C$

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V_{CBO}	30	V
Collector - Emitter Voltage	V_{CEO}	25	
Emitter - Base Voltage	V_{EBO}	15	
Collector Current - Continuous	I_C	2	A
Collector Current - Pulse	I_{CP}	3	
Collector Power Dissipation (Note.1)	P_C	2	W
Junction Temperature	T_J	150	$^\circ C$
Storage Temperature Range	T_{stg}	-55 to 150	

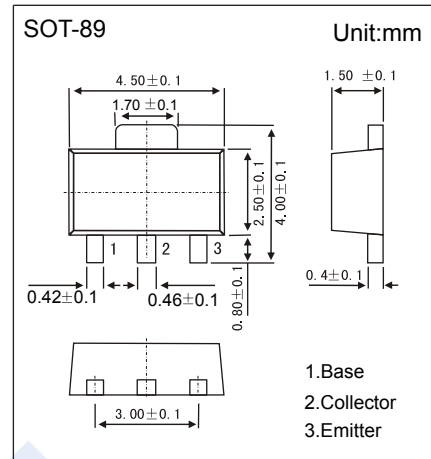
Note.1 : Mounted on ceramic substrate of $250mm^2 \times 0.8mm$

■ Electrical Characteristics $T_a = 25^\circ C$

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	V_{CBO}	$I_C = 100 \mu A, I_E = 0$	30			V
Collector- emitter breakdown voltage	V_{CEO}	$I_C = 1 mA, I_B = 0$	25			
Emitter - base breakdown voltage	V_{EBO}	$I_E = 100 \mu A, I_C = 0$	15			
Collector-base cut-off current	I_{CBO}	$V_{CB} = 30 V, I_E = 0$			0.1	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = 10 V, I_C = 0$			0.1	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 1 A, I_B = 10 mA$			0.3	V
Base - emitter saturation voltage	$V_{BE(sat)}$	$I_C = 1 A, I_B = 10 mA$			1.2	
Base - emitter voltage	V_{BE}	$V_{CE} = 5 V, I_C = 300 mA$	0.6		0.7	
DC current gain	h_{FE}	$V_{CE} = 5 V, I_C = 1 A$	800		3200	
		$V_{CE} = 5 V, I_C = 2 A$	400			
Collector output capacitance	C_{ob}	$V_{CB} = 10 V, I_E = 0, f = 1 MHz$			35	pF
Transition frequency	f_t	$V_{CE} = 10 V, I_E = -500 mA$	150			MHz

■ Classification of $h_{FE}(1)$

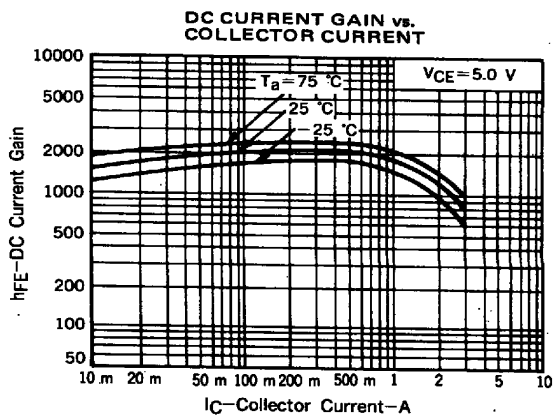
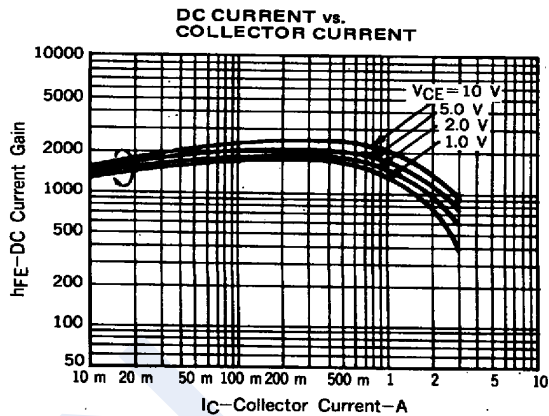
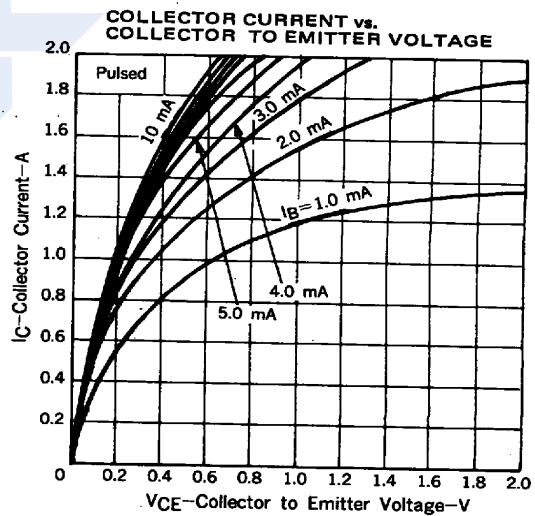
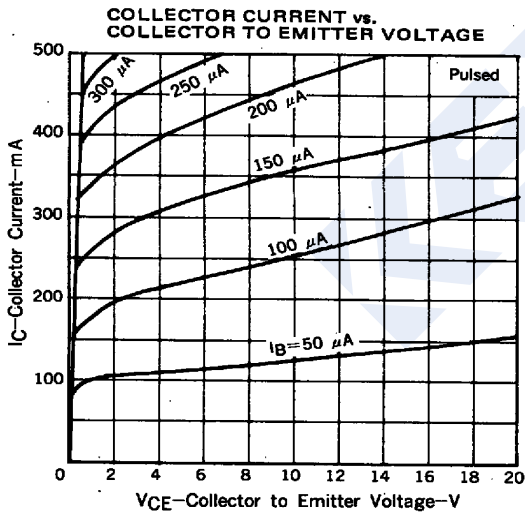
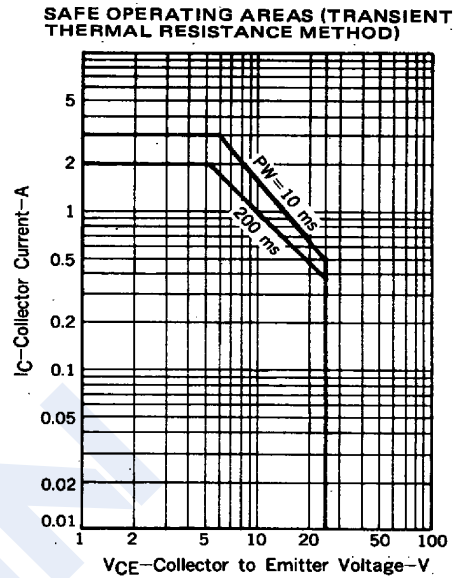
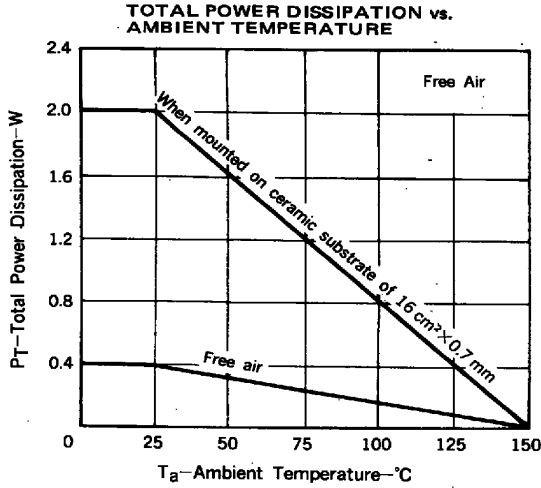
Type	2SD1950-M	2SD1950-L	2SD1950-K
Range	800-1600	1200-2400	2000-3200
Marking	VM	VL	VK



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Typical Characteristics

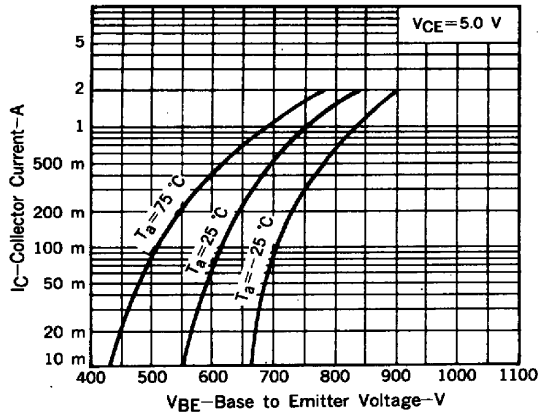


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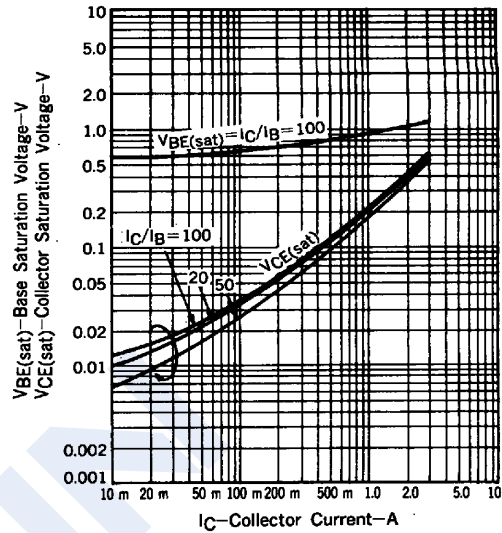
2SD1950

■ Typical Characteristics

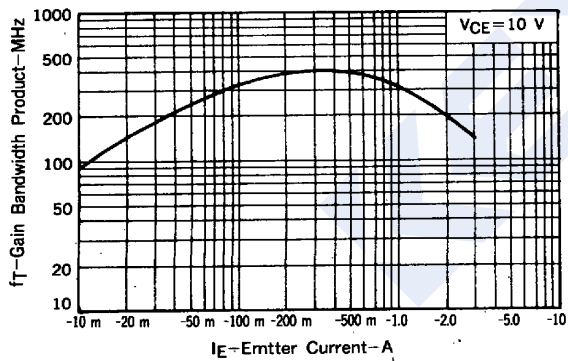
COLLECTOR CURRENT vs. BASE TO EMITTER VOLTAGE



COLLECTOR AND BASE SATURATION VOLTAGE vs. COLLECTOR CURRENT



GAIN BANDWIDTH PRODUCT vs. EMITTER CURRENT



OUTPUT CAPACITANCE vs. COLLECTOR TO BASE VOLTAGE

