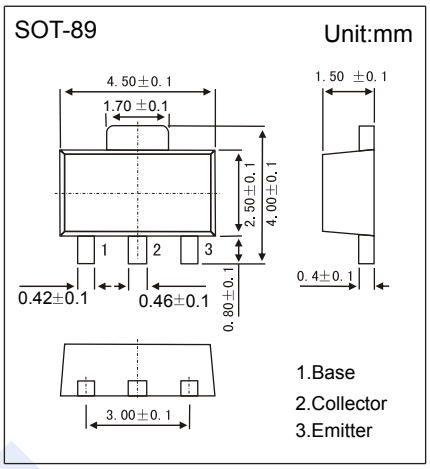
NPN Transistors

2SD999



■ Features

- Collector Current Capability I_C=1A
- Collector Emitter Voltage V_{CEO}=25V

■ Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V_{CBO}	30	V
Collector - Emitter Voltage	V_{CEO}	25	
Emitter - Base Voltage	V_{EBO}	5	
Collector Current - Continuous	I_C	1	A
Collector Current - Pulse	I_{CP}	1.5	
Collector Power Dissipation (Note.1)	P_C	2	W
Junction Temperature	T_J	150	℃
Storage Temperature Range	T_{stg}	-55 to 150	

Note.1 : Mounted on ceramic substrate of 16cm^{2}X0.7mm

■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	V_{CBO}	I_C= 100 μA, 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 μ A, I_C= 0	5			
Collector-base cut-off current	I_{CBO}	V_{CB}= 30 V , I_E= 0			0.1	uA
Emitter cut-off current	I_{EBO}	V_{EB}= 5V , I_C=0			0.1	
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C=1 A, I_B=100mA			0.4	V
Base - emitter saturation voltage	$V_{BE(sat)}$	I_C=1 A, I_B=100mA			1.2	
Base - emitter voltage	V_{BE}	V_{CE}= 6V, I_C=10mA	0.6		0.7	
DC current gain	h_{FE}	V_{CE}= 1V, I_C=100mA	90		400	
		V_{CE}= 1V, I_C=1 A	50			
Collector output capacitance	C_{ob}	V_{CB}= 6V, I_E=0,f=1MHz		22		pF
Transition frequency	f_T	V_{CE}= 6V, I_E=-10mA		130		MHz

■ Classification of hfe(1)

Type	2SD999-M	2SD999-L	2SD999-K
Range	90-180	135-270	200-400
Marking	CM	CL	CK

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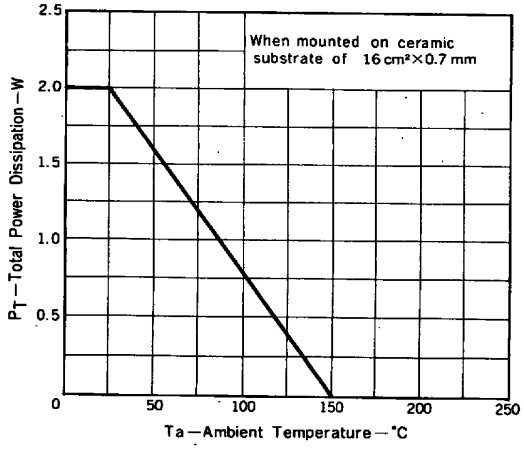
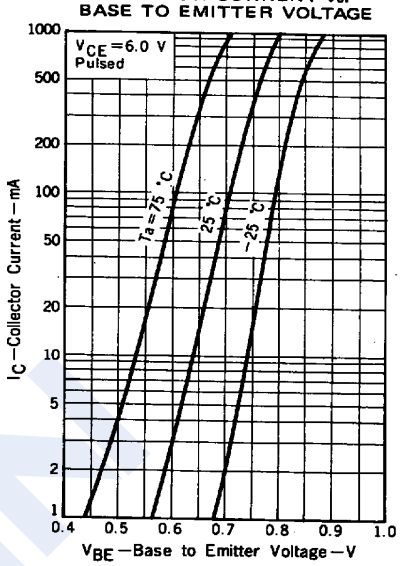
■ Typical Characterisitics

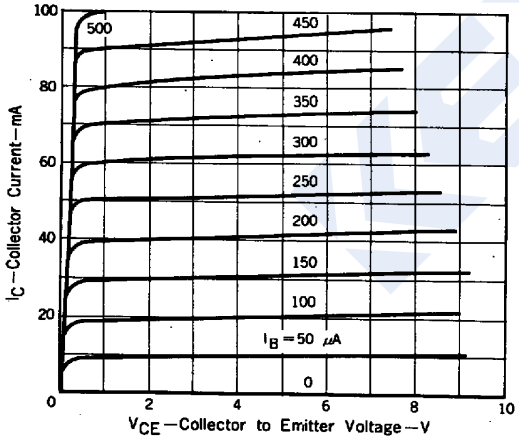
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



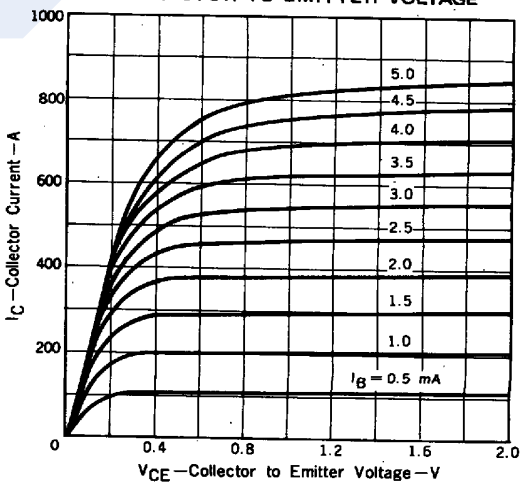
COLLECTOR CURRENT vs. BASE TO EMITTER VOLTAGE



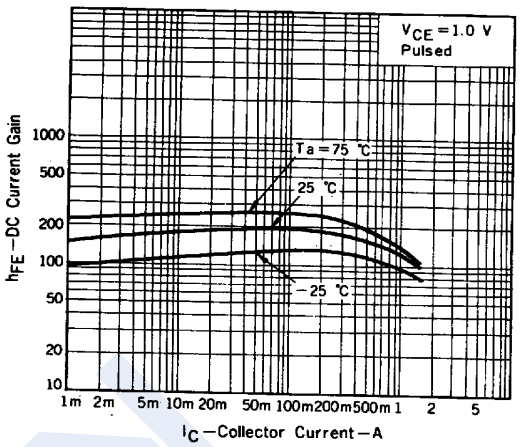
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



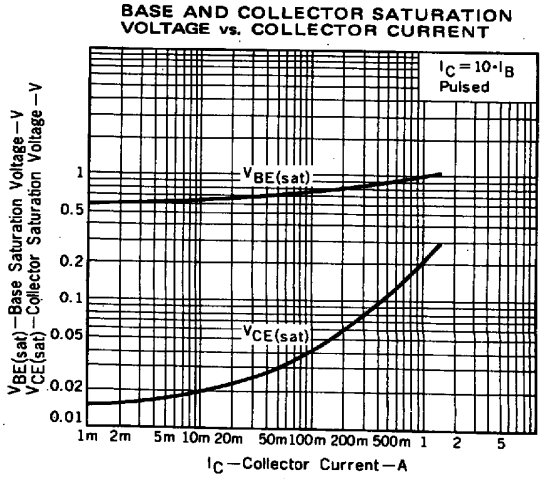
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



DC CURRENT GAIN vs. COLLECTOR CURRENT



BASE AND COLLECTOR SATURATION VOLTAGE vs. COLLECTOR CURRENT

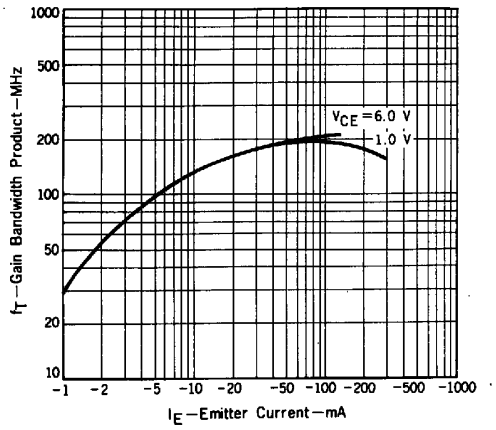


NPN Transistors

2SD999

■ Typical Characterisitics

GAIN BANDWIDTH PRODUCT vs.
EMITTER CURRENT



OUTPUT CAPACITANCE vs.
COLLECTOR TO BASE VOLTAGE