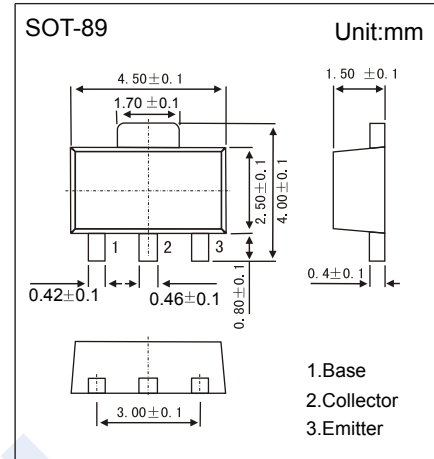


NPN Transistors

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■ Features

- Collector Current Capability $I_C=2A$
- Collector Emitter Voltage $V_{CE0}=10V$



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

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V_{CB0}	20	V
Collector - Emitter Voltage	V_{CE0}	10	
Emitter - Base Voltage	V_{EB0}	15	
Collector Current - Continuous	I_C	2	A
Collector Current - Pulse	I_{CP}	4	
Base Current	I_B	0.4	W
Collector Power Dissipation (Note.1)	P_C	0.5 1.3	
Junction Temperature	T_J	150	$^\circ C$
Storage Temperature Range	T_{stg}	-55 to 150	

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

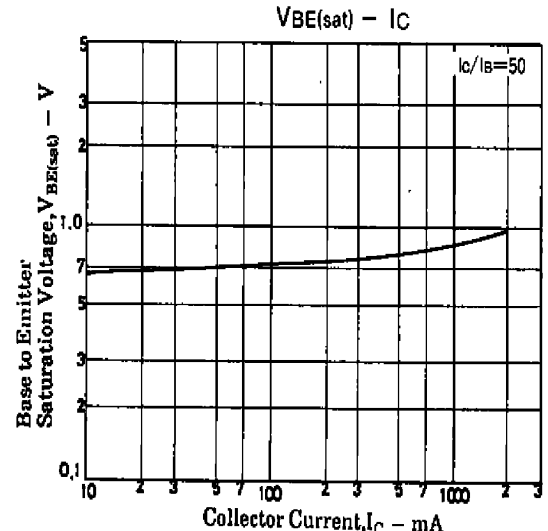
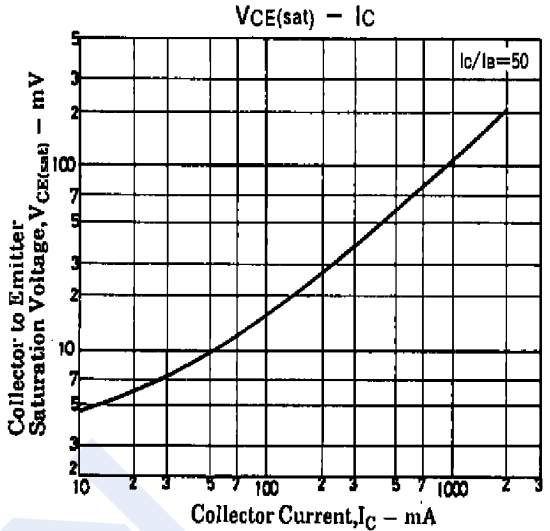
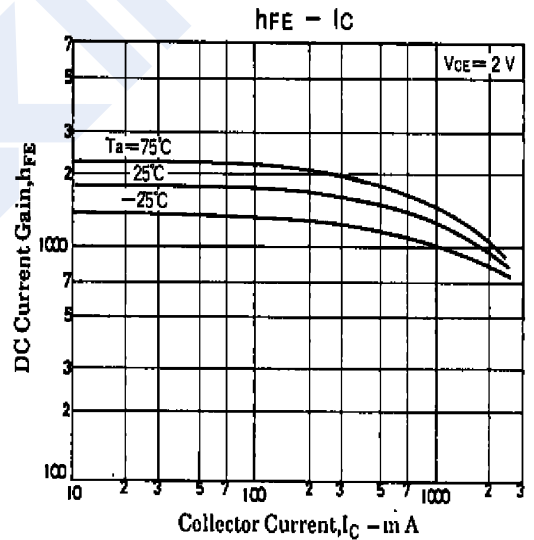
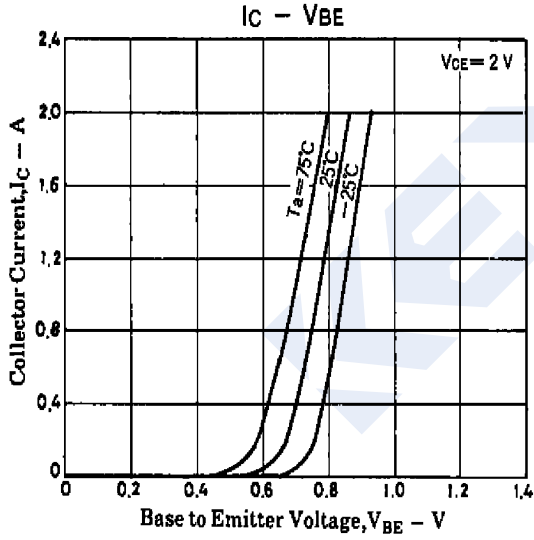
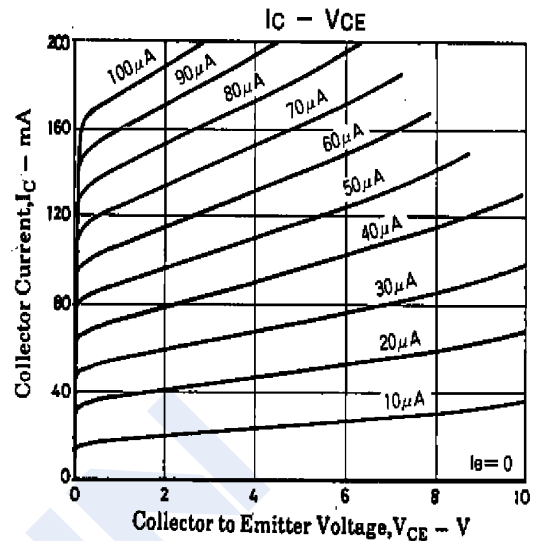
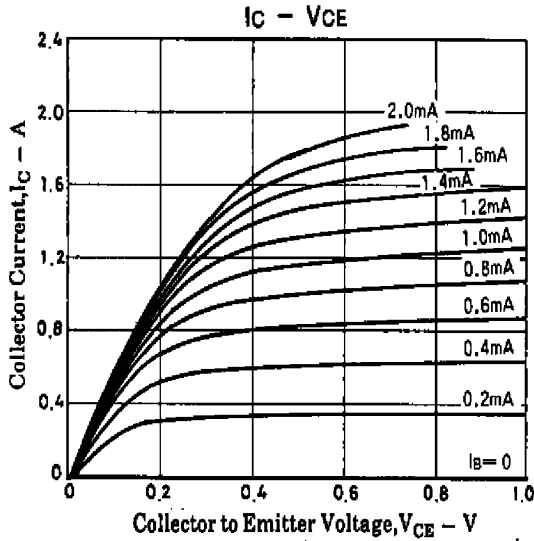
■ Electrical Characteristics $T_a = 25^\circ C$

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	V_{CB0}	$I_C = 100 \mu A, I_E = 0$	20			V
Collector- emitter breakdown voltage	V_{CE0}	$I_C = 1 mA, R_{BE} = \infty$	10			
Emitter - base breakdown voltage	V_{EB0}	$I_E = 100 \mu A, I_C = 0$	15			
Collector-base cut-off current	I_{CB0}	$V_{CB} = 15 V, I_E = 0$			0.1	μA
Emitter cut-off current	I_{EB0}	$V_{EB} = 10 V, I_C = 0$			0.1	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 1 A, I_B = 20 mA$			0.5	V
Base - emitter saturation voltage	$V_{BE(sat)}$	$I_C = 1 A, I_B = 20 mA$			1.2	
DC current gain	h_{FE}	$V_{CE} = 2V, I_C = 500 mA$	800		3200	
		$V_{CE} = 2V, I_C = 2A$	400			
Turn-on time	t_{on}	See Specified test circuit		0.13		μs
Storage time	t_{stg}			0.8		
Fall time	t_f			0.1		
Collector output capacitance	C_{ob}	$V_{CB} = 10V, f = 1MHz$		28		pF
Transition frequency	f_T	$V_{CE} = 10V, I_C = 50mA$		260		MHz

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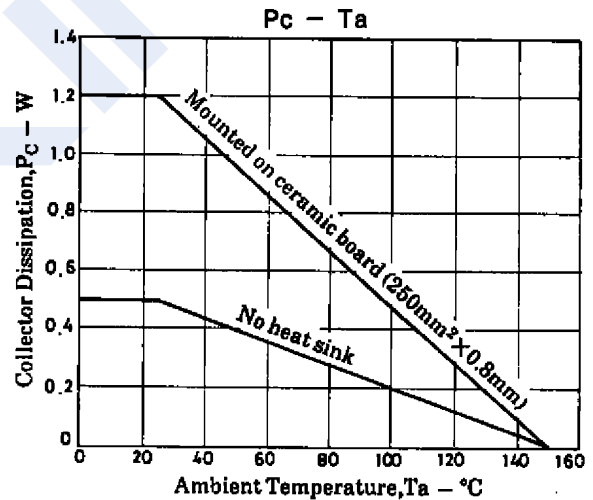
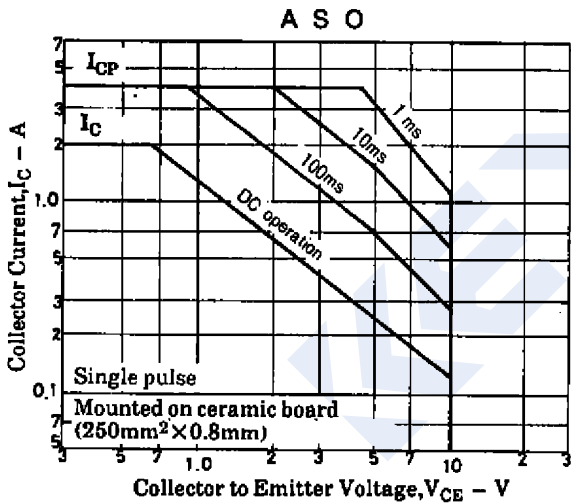
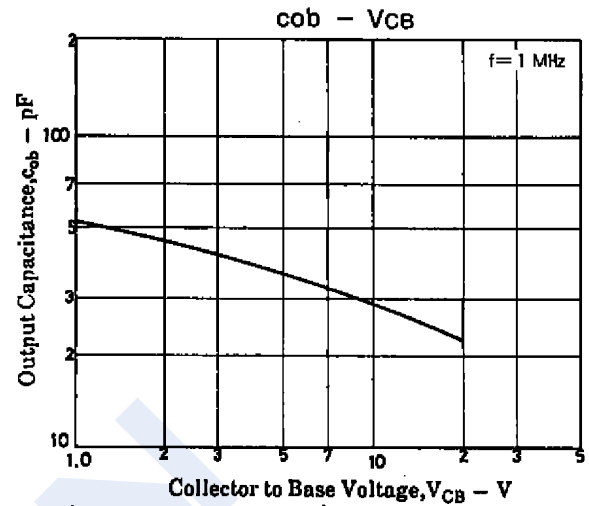
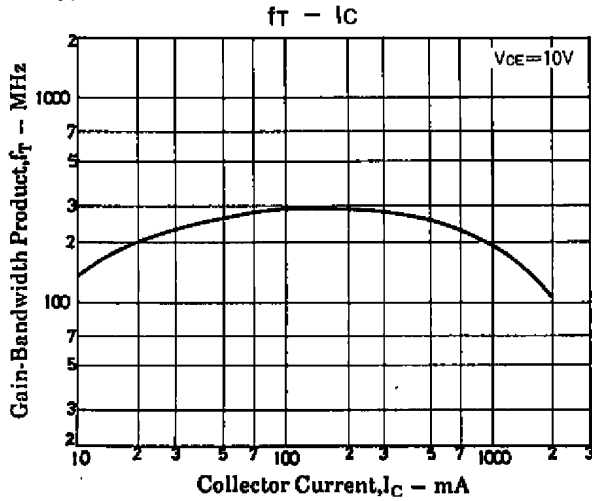
■ Typical Characteristics



NPN Transistors

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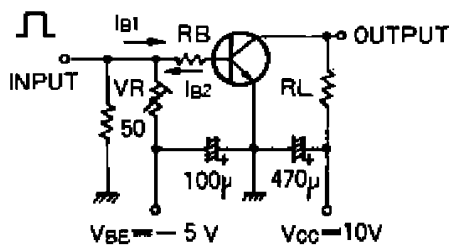
■ Typical Characteristics



Switching Time Test Circuit

$PW = 20\mu s$

$DC \leq 1\%$



$100I_{B1} = -100I_{B2} = I_C = 700mA$

Unit (Resistance : Ω , Capacitance : F)