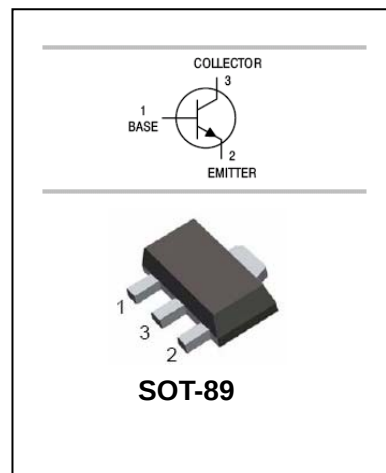


NPN Silicon Epitaxial Transistor

2SD999

FEATURES

- Low Collector Saturation Voltage:
 $V_{CE(sat)} < 0.4V$ ($I_C = 1.0A, I_B = 100mA$)
- Excellent DC Current Gain Linearity:
 $h_{FE} = 140$ Typ. ($V_{CE} = 1.0V, I_C = 1.0A$)
- Complements to PNP type 2SB798



ORDERING INFORMATION

Type No.	Marking	Package Code
2SD999	CM/CL/CK	SOT-89

MAXIMUM RATING @ $T_a = 25^\circ C$ unless otherwise specified

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	30	V
V_{CEO}	Collector-Emitter Voltage	25	V
V_{EBO}	Emitter-Base Voltage	5.0	V
I_C	Collector Current	1.0	A
P_C	Collector power dissipation	2.0	W
T_j	Junction Temperature	-55 to +150	$^\circ C$
T_{stg}	Storage Temperature	-55 to +150	$^\circ C$



NPN Silicon Epitaxial Transistor

2SD999

ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=10\mu A, I_E=0$	30			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=2mA, I_B=0$	25			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=10\mu A, I_C=0$	5.0			V
Collector cut-off current	I_{CBO}	$V_{CB}=30V, I_E=0$			0.1	μA
Emitter cut-off current	I_{EBO}	$V_{EB}=5.0V, I_C=0$			0.1	μA
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=1.0A, I_B=0.1A$		0.21	0.4	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C=1.0A, I_B=0.1A$		1.0	1.2	V
Base to emitter voltage	V_{BE}	$V_{CE}=6.0V, I_C=10mA$	600	630	700	mV
DC current gain(note)	h_{FE}	$V_{CE}=1.0V, I_C=100mA$	90	200	400	
		$V_{CE}=1.0V, I_C=1.0A$	50	140		
Current gain bandwidth product	f_T	$V_{CE}=6V, I_E=-10mA$		130		MHz
Output Capacitance	C_{ob}	$V_{CB}=20V, f=1MHz, I_E=0A$		22		pF

CLASSIFICATION OF h_{FE}

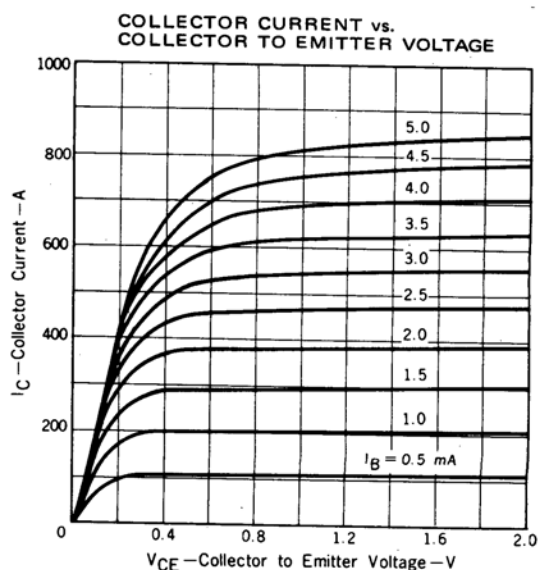
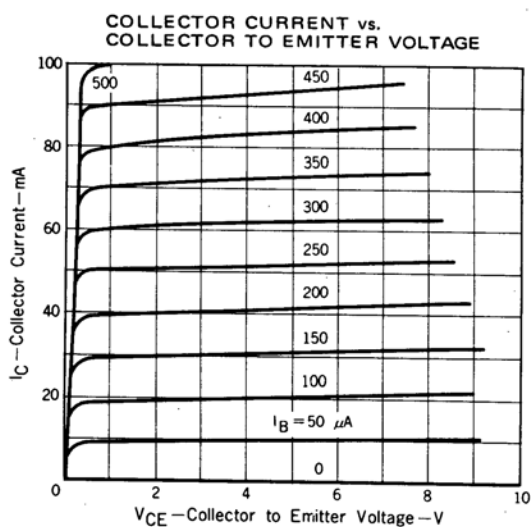
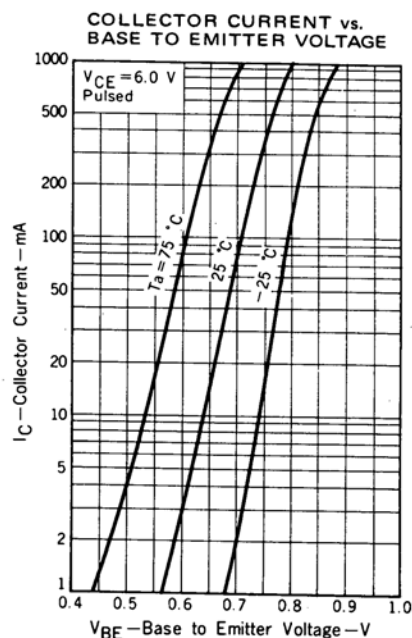
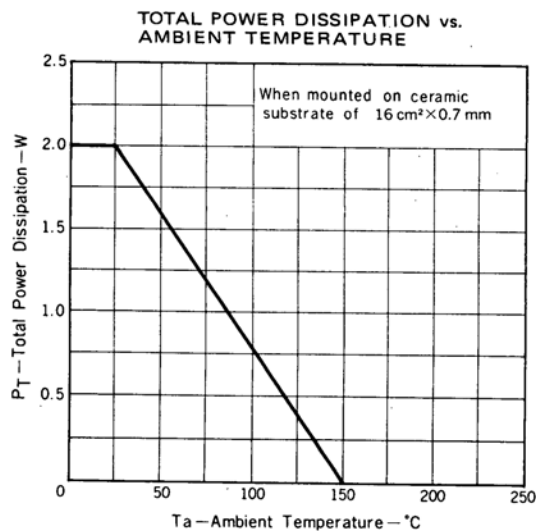
RANK	M	L	K
RANGE	90-180	135-270	200-400



NPN Silicon Epitaxial Transistor

2SD999

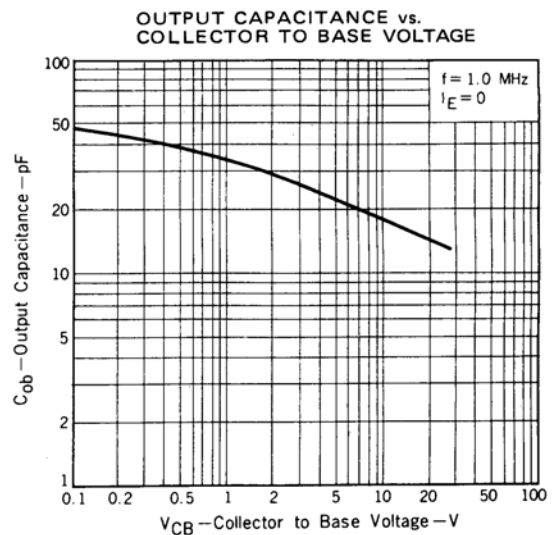
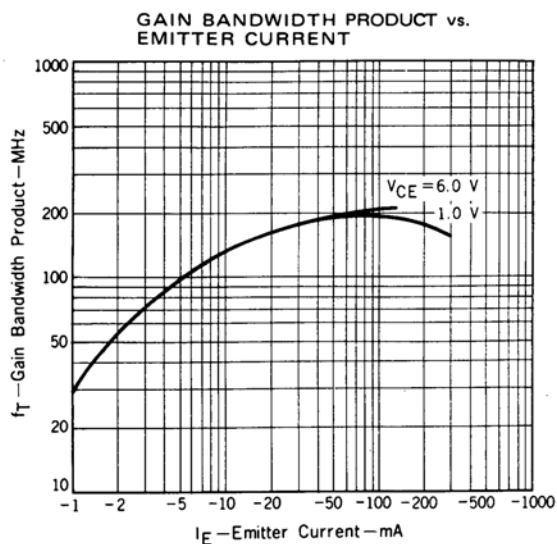
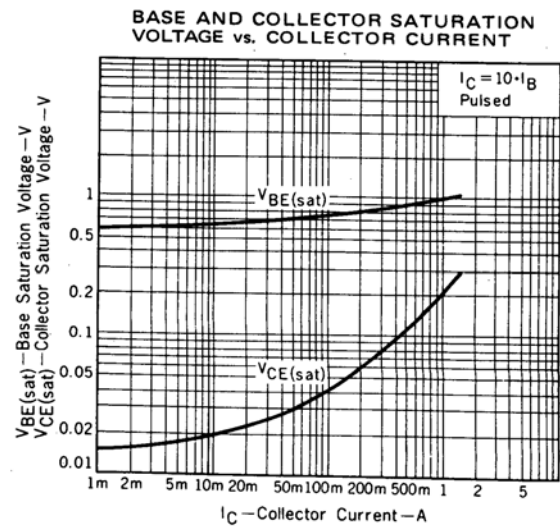
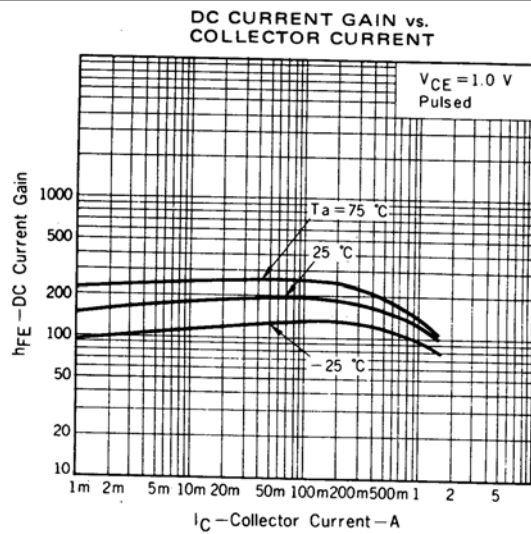
TYPICAL CHARACTERISTICS @ $T_a=25^\circ\text{C}$ unless otherwise specified





NPN Silicon Epitaxial Transistor

2SD999



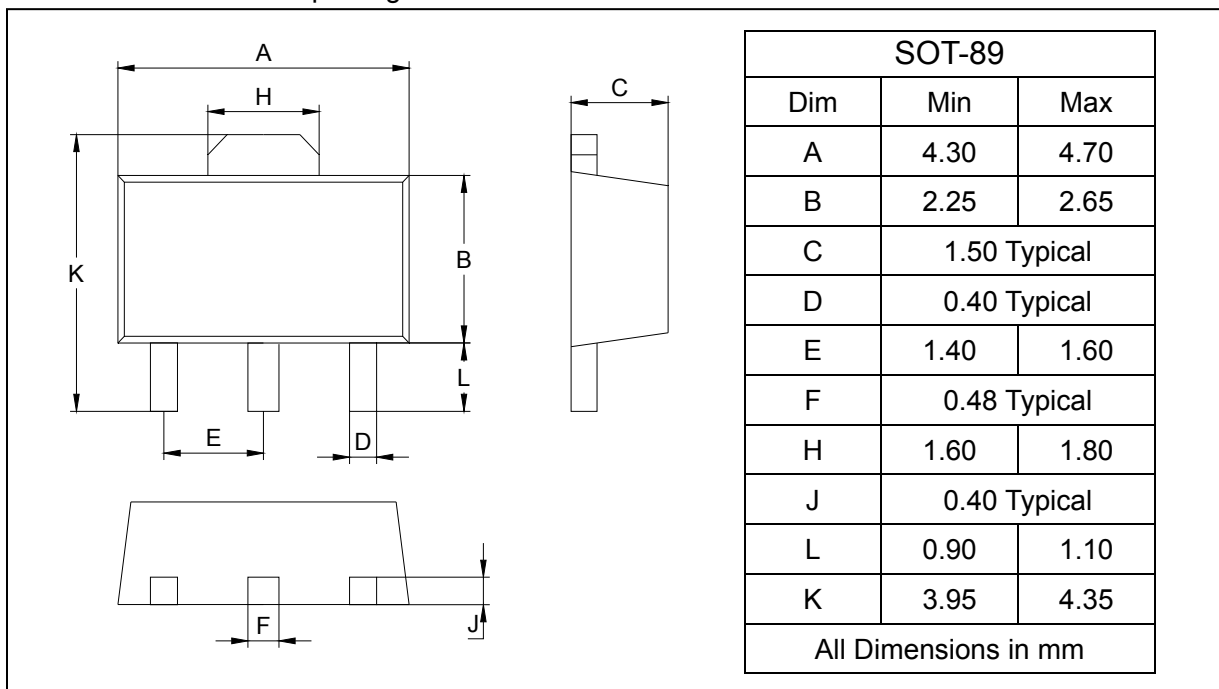
NPN Silicon Epitaxial Transistor

2SD999

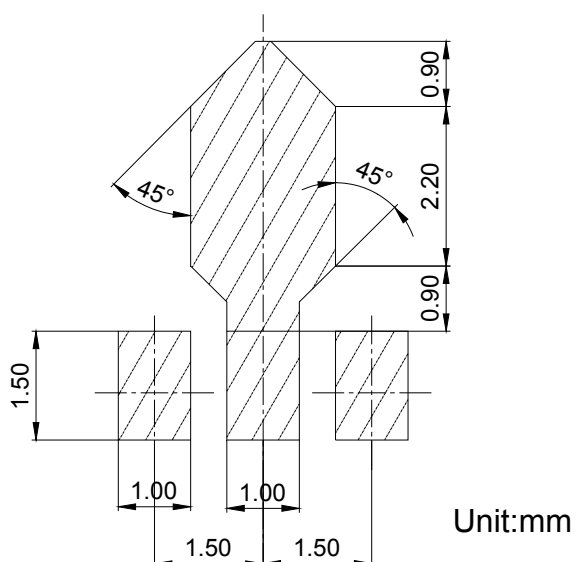
PACKAGE OUTLINE

Plastic surface mounted package

SOT-89



SOLDERING FOOTPRINT



PACKAGE INFORMATION

Device	Package	Shipping
2SD999	SOT-89	1000/Tape&Reel