

**2SC 3199**  
**2SC 3199** (L)

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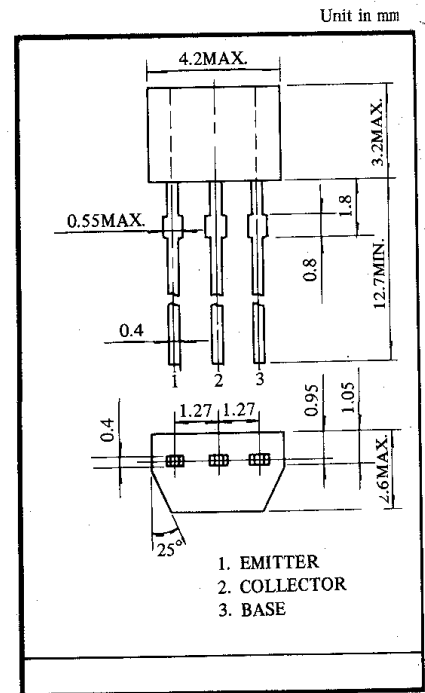
**SILICON NPN TRANSISTOR**  
**EPITAXIAL PLANAR TYPE (PCT PROCESS)**

**APPLICATIONS**

- Audio Amplifier Applications.
- AM Amplifier Applications.

**FEATURES**

- High Current Capability :  $I_C=150\text{mA}$  (Max.).
- High DC Current Gain :  $h_{FE}=70\sim 700$ .
- Excellent  $h_{FE}$  Linearity :  $h_{FE}(0.1\text{mA})/h_{FE}(2\text{mA})=0.95$  (Typ.).
- Low Noise :  $NF=1\text{dB}$  (Typ.),  $10\text{dB}$  (Max.).
- Low Noise 2SA3199  $NF=1\text{dB}$  (TYP),  $10\text{dB}$  (Max).  
2SA3199(L)  $NF=0.2\text{dB}$  (TYP),  $3\text{dB}$  (Max.)
- Complementary to 2SA1267/2SA1267(L).
- Small Package.



**MAXIMUM RATINGS** ( $T_a=25^\circ\text{C}$ )

CHARACTERISTIC	SYMBOL	RATING	UNIT	CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	$V_{CBO}$	50	V	Emitter Current	$I_E$	-150	mA
Collector-Emitter Voltage	$V_{CEO}$	50	V	Collector Power Dissipation	$P_C$	200	mW
Emitter-Base Voltage	$V_{EBO}$	5	V	Junction Temperature	$T_j$	125	$^\circ\text{C}$
Collector Current	$I_C$	150	mA	Storage Temperature Range	$T_{stg}$	-55~125	$^\circ\text{C}$

**ELECTRICAL CHARACTERISTICS** ( $T_a=25^\circ\text{C}$ )

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	$I_{CBO}$	$V_{CB}=50\text{V}, I_E=0$	—	—	0.1	$\mu\text{A}$
Emitter Cut-off Current	$I_{EBO}$	$V_{EB}=5\text{V}, I_C=0$	—	—	0.1	$\mu\text{A}$
DC Current Gain	$h_{FE(\text{Note})}$	$V_{CE}=6\text{V}, I_C=2\text{mA}$	70	—	700	
Collector-Emitter Saturation Voltage	$V_{CE(\text{sat})}$	$I_C=100\text{mA}, I_B=10\text{mA}$	—	0.1	0.25	V
Transition Frequency	$f_T$	$V_{CE}=10\text{V}, I_C=1\text{mA}$	80	—	—	MHz
Collector Output Capacitance	$C_{ob}$	$V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$	—	2.0	3.5	pF
Noise Figure	2SC3199	$V_{CE}=6\text{V}, I_C=0.1\text{mA}$ $f=1\text{kHz}, R_g=10\text{k}\Omega$	—	1	10	dB
	2SC3199(L)		—	0.2	3	

**NOTE: According to  $h_{FE}$ , Classified as follows.**

O	70~140	Y	120~240	GR	200~400	BL	350~700
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