

# 2SC2240

## Low Noise Audio Amplifier Applications

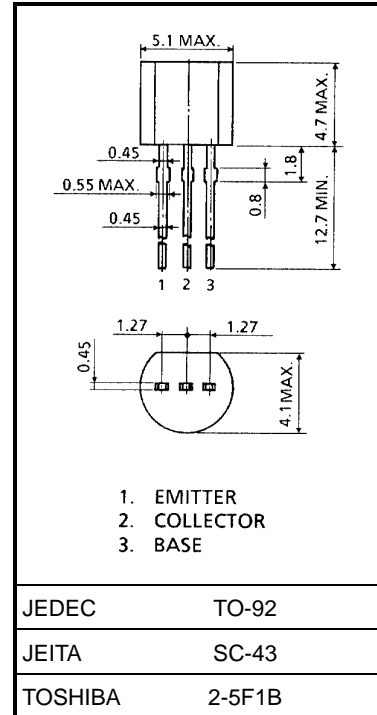
The 2SC2240 is a transistor for low frequency and low noise applications. This device is designed to lower noise figure in the region of low signal source impedance, and to lower the pulse noise. This is recommended for the first stages of Equalizer amplifiers.

- Low noise:  $NF = 4dB$  (typ.)  $R_G = 100 \Omega$ ,  $V_{CE} = 6 V$ ,  $I_C = 100 \mu A$ ,  
 $f = 1 kHz$   
 $: NF = 0.5dB$  (typ.)  $R_G = 1 k\Omega$ ,  $V_{CE} = 6 V$ ,  $I_C = 100 \mu A$ ,  
 $f = 1 kHz$
- Low pulse noise: Low  $1/f$  noise
- High DC current gain:  $h_{FE} = 200\sim 700$
- High breakdown voltage:  $V_{CEO} = 120 V$

### Maximum Ratings (Ta = 25°C)

Characteristics	Symbol	Rating	Unit
Collector-base voltage	$V_{CBO}$	120	V
Collector-emitter voltage	$V_{CEO}$	120	V
Emitter-base voltage	$V_{EBO}$	5	V
Collector current	$I_C$	100	mA
Base current	$I_B$	20	mA
Collector power dissipation	$P_C$	300	mW
Junction temperature	$T_j$	125	°C
Storage temperature range	$T_{stg}$	-55~125	°C

Unit: mm

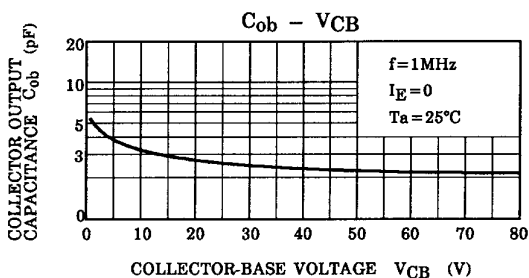
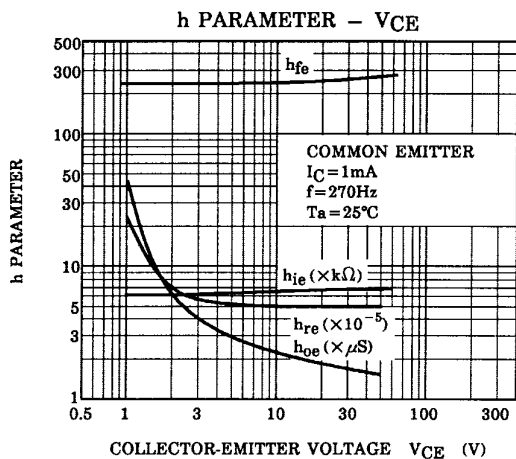
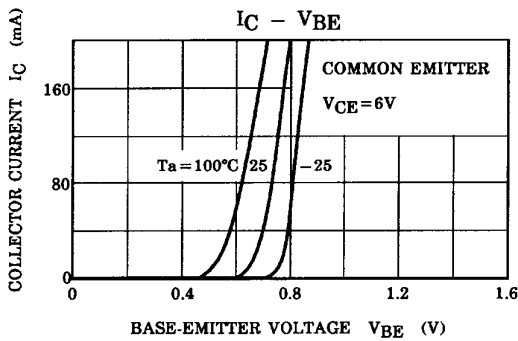
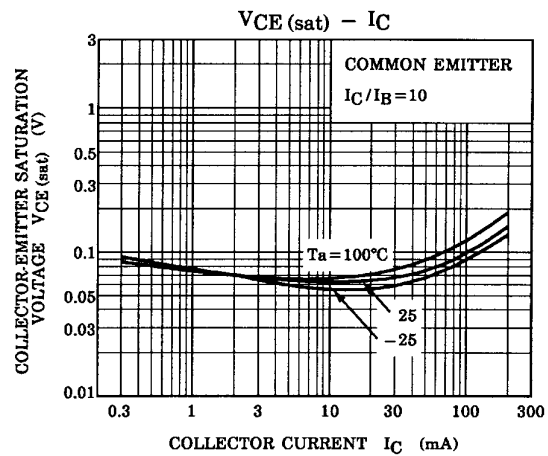
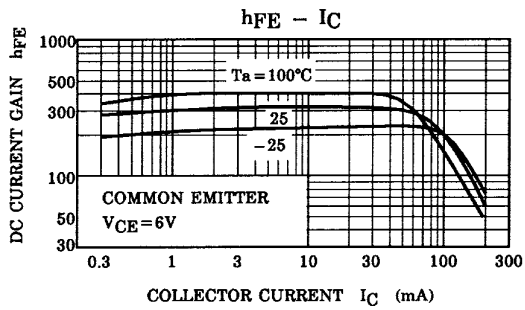
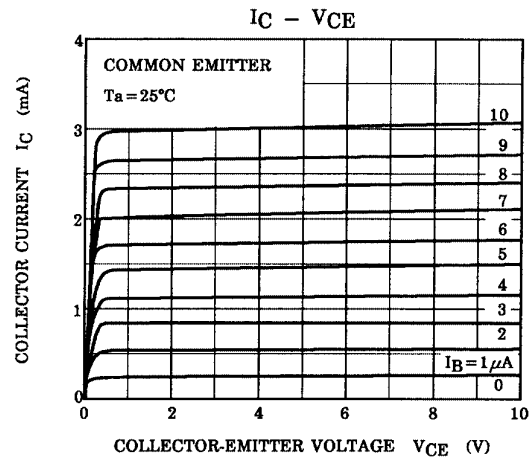
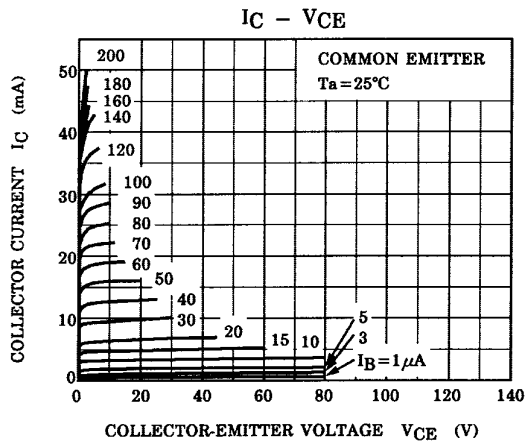


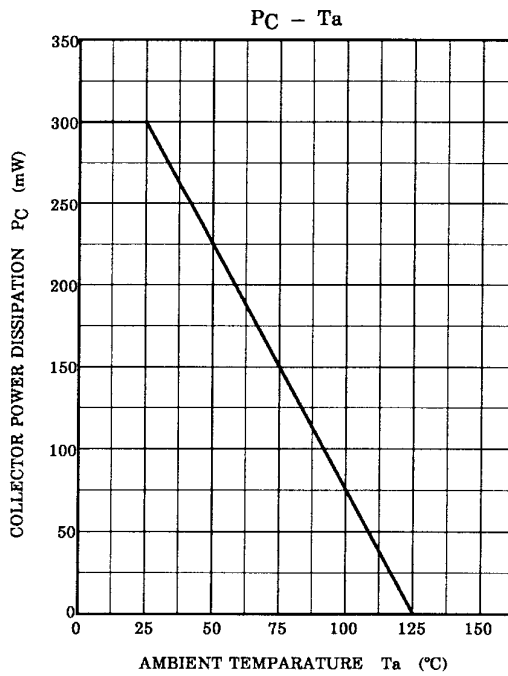
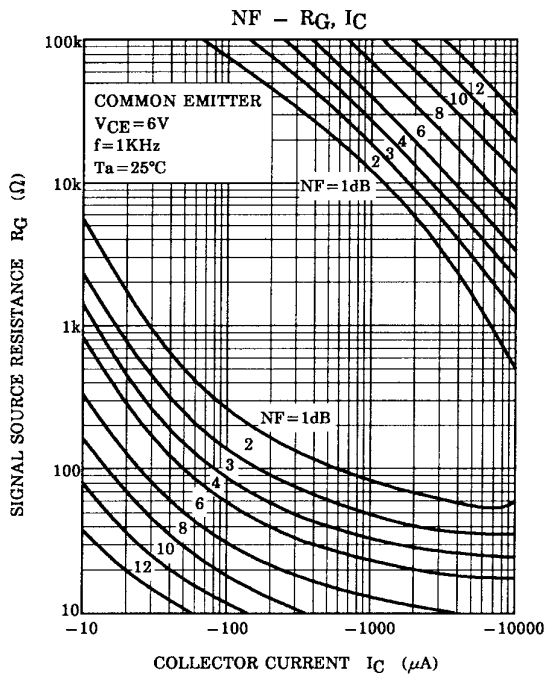
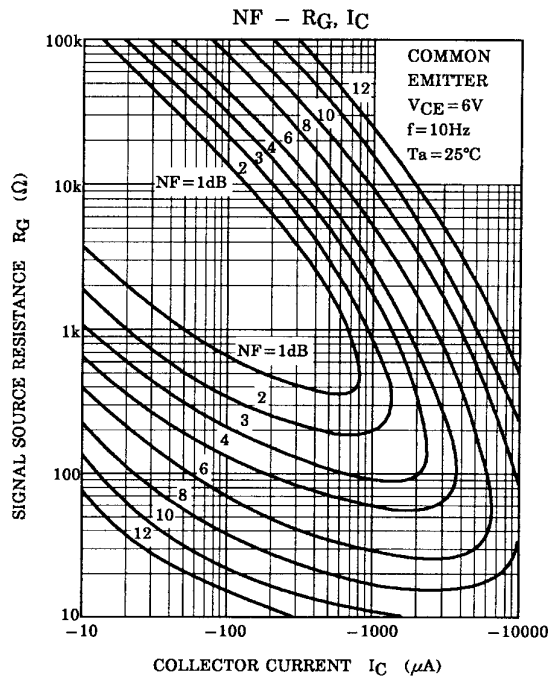
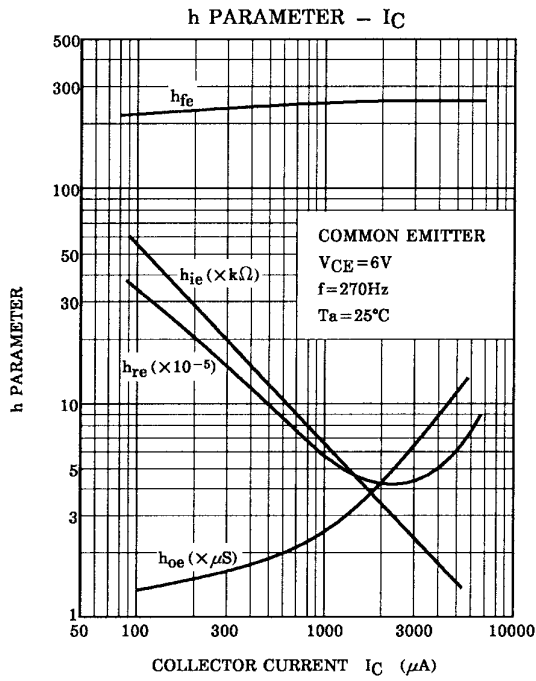
Weight: 0.21 g (typ.)

## Electrical Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	$I_{CBO}$	$V_{CB} = 120\text{ V}, I_E = 0$	—	—	0.1	$\mu\text{A}$
Emitter cut-off current	$I_{EBO}$	$V_{EB} = 5\text{ V}, I_C = 0$	—	—	0.1	$\mu\text{A}$
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = 1\text{ mA}, I_B = 0$	120	—	—	V
DC current gain	$h_{FE}$ (Note)	$V_{CE} = 6\text{ V}, I_C = 2\text{ mA}$	200	—	700	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 10\text{ mA}, I_B = 1\text{ mA}$	—	—	0.3	V
Base-emitter voltage	$V_{BE}$	$V_{CE} = 6\text{ V}, I_C = 2\text{ mA}$	—	0.65	—	V
Transition frequency	$f_T$	$V_{CE} = 6\text{ V}, I_C = 1\text{ mA}$	—	100	—	MHz
Collector output capacitance	$C_{ob}$	$V_{CB} = 10\text{ V}, I_E = 0, f = 1\text{ MHz}$	—	3.0	—	pF
Noise figure	NF	$V_{CE} = 6\text{ V}, I_C = 0.1\text{ mA}, f = 10\text{ Hz}, R_G = 10\text{ k}\Omega$	—	—	6	dB
		$V_{CE} = 6\text{ V}, I_C = 0.1\text{ mA}, f = 1\text{ kHz}, R_G = 10\text{ k}\Omega$	—	—	2	
		$V_{CE} = 6\text{ V}, I_C = 0.1\text{ mA}, f = 1\text{ kHz}, R_G = 100\ \Omega$	—	4	—	

Note:  $h_{FE}$  classification GR: 200~400, BL: 350~700





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