

TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT process)

2SC2713

Audio Frequency General Purpose Amplifier Applications

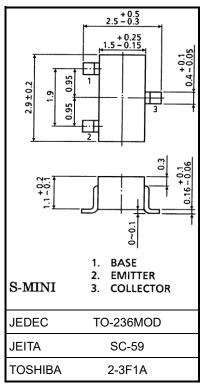
Unit: mm

- AEC-Q101 Qualified (Note1).
- High voltage: VCEO = 120 V
- Excellent hFE linearity: hFE ($I_C = 0.1 \text{ mA}$)/hFE ($I_C = 2 \text{ mA}$) = 0.95 (typ.)
- High hFE: hFE = 200 to 700
- Low noise: NF = 1dB (typ.), 10dB (max)
- Complementary to 2SA1163
- Small package

Note1: For detail information, please contact our sales.

Absolute Maximum Ratings (Ta = 25°C)

Characteristics	Symbol	Rating	Unit	
Collector-base voltage	V_{CBO}	120	V	
Collector-emitter voltage	VCEO	120	V	
Emitter-base voltage	VEBO	5	V	
Collector current	Ic	100	mA	
Base current	Ι _Β	20	mA	
Collector power dissipation	Pc (Note 2, 4)	200	mW	
	Pc (Note 3)	150		
Junction temperature	T _j (Note 2)	150	°C	
	T _j (Note 3)	125		
Storage temperature range	T _{stg} (Note 2)	-55 to 150	°C	
	T _{stg} (Note 3)	-55 to 125		



Weight: 0.012 g (typ.)

Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings.

Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

- Note 2: For devices with the ordering part number ending in LF(T.
- Note 3: For devices with the ordering part number in other than LF(T.
- Note 4: Mounted on a FR4 board. (25.4 mm × 25.4 mm × 1.6 mm, Cu pad: 0.8 mm² × 3)

Start of commercial production 1982-10

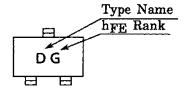


Electrical Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Тур.	Max	Unit
Collector cut-off current	ICBO	V _{CB} = 120 V, I _E = 0 A	_	_	0.1	μА
Emitter cut-off current	I _{EBO}	V _{EB} = 5 V, I _C = 0 A	_	_	0.1	μА
DC current gain	hFE (Note)	VCE = 6 V, IC = 2 mA	200	_	700	_
Collector-emitter saturation voltage	VCE (sat)	IC = 10 mA, IB = 1 mA	_	_	0.3	V
Transition frequency	fΤ	VCE = 6 V, IC = 1 mA	_	100	_	MHz
Collector output capacitance	C _{ob}	V _{CB} = 10 V, I _E = 0 A, f = 1 MHz	_	3.0	_	pF
Noise figure	NF	$V_{CE} = 6 \text{ V}, \text{ I}_{C} = 0.1 \text{ mA}$ $f = 1 \text{ kHz}, \text{ R}_{G} = 10 \text{ k}\Omega$		1.0	10	dB

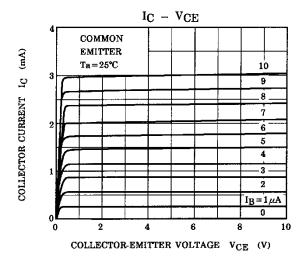
Note: hFE classification GR (G): 200~400, BL (L): 350~700, () marking symbol

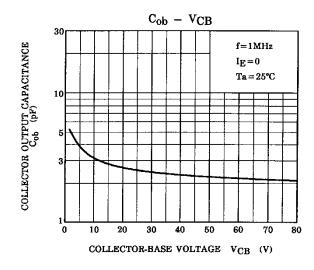
Marking

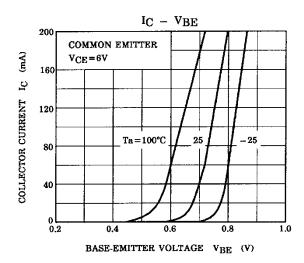


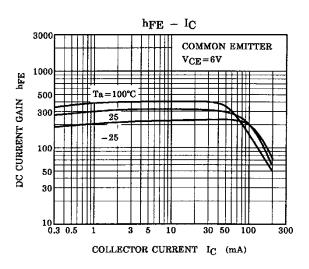


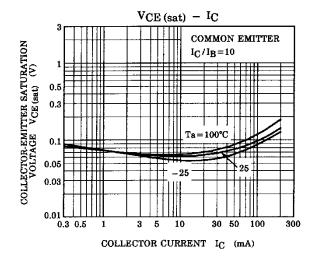
Characteristics Curves

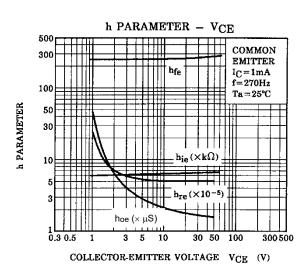




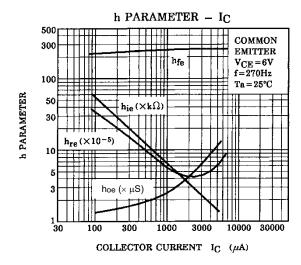


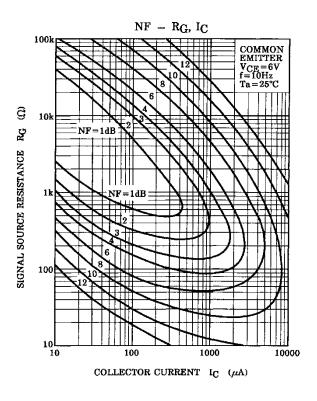


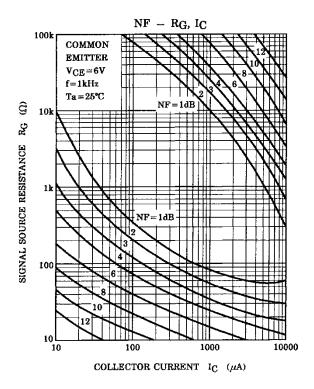




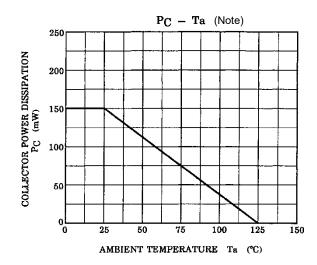


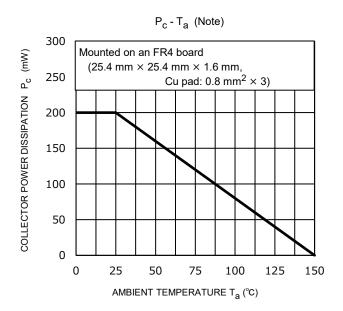












Note: Reference only with T_j of 125 °C.

The above characteristics curves are presented for reference only and not guaranteed by production test, unless otherwise noted.



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