TOSHIBA TRANSISTOR SILICON PNP EPITAXIAL TYPE (PCT PROCESS)

2SA1316

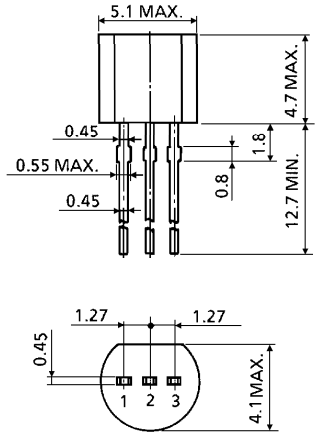
FOR LOW NOISE AUDIO AMPLIFIER APPLICATIONS AND
RECOMMENDED FOR THE FIRST STAGES OF MC HEAD AMPLIFIERS

- Very Low Noise in the Region of Low Signal Source Impedance
  Equivalent Input Noise Voltage : $E_n = 0.6nV / \sqrt{Hz}$ (Typ.)
- Low Pulse Noise. Low 1/f Noise
- Low Base Spreading Resistance : $r_{bb'} = 2.0\Omega$ (Typ.)
- Complementary to 2SC3329

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CBO}	−80	V
Collector-Emitter Voltage	V_{CEO}	−80	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	400	mW
Junction Temperature	T_j	125	°C
Storage Temperature Range	T_{stg}	−55~125	°C

Unit in mm



1. EMITTER
2. COLLECTOR
3. BASE

JEDEC	TO-92
EIAJ	SC-43
TOSHIBA	2-5F1B

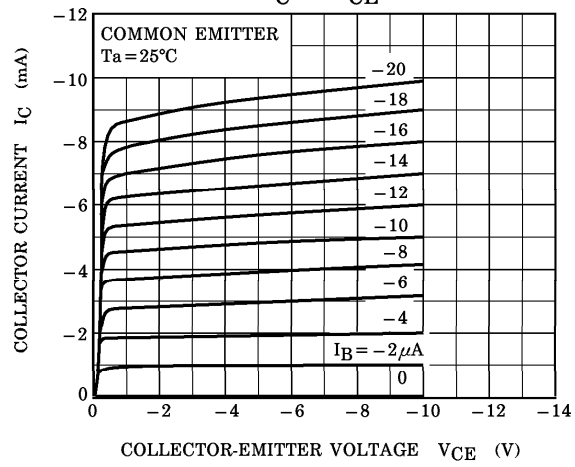
Weight : 0.21g

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

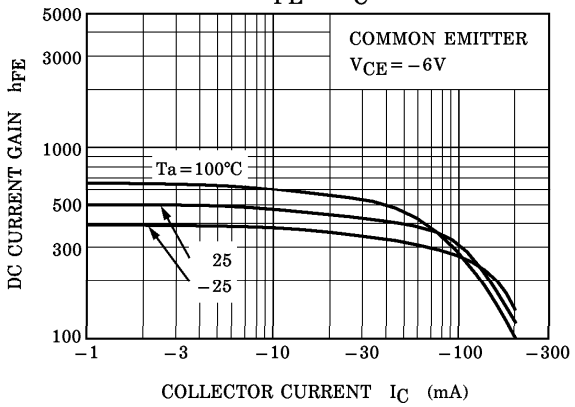
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	I_{CBO}	$V_{CB} = -80V$, $I_E = 0$	—	—	−0.1	μA
Emitter Cut-off Current	I_{EBO}	$V_{EB} = -5V$, $I_C = 0$	—	—	−0.1	μA
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = -1mA$, $I_B = 0$	−80	—	—	V
DC Current Gain	h_{FE} (Note)	$V_{CE} = -6V$, $I_C = -2mA$	200	—	700	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = -10mA$, $I_B = -1mA$	—	—	−0.1	V
Base-Emitter Voltage	V_{BE}	$V_{CE} = -6V$, $I_C = -2mA$	—	−0.6	—	V
Base Spreading Resistance	$r_{bb'}$	$V_{CE} = -6V$, $I_C = -1mA$, f = 100MHz	—	2.0	—	Ω
Transition Frequency	f_T	$V_{CE} = -6V$, $I_C = -1mA$, f = 100MHz	—	50	—	MHz
Collector Output Capacitance	C_{ob}	$V_{CB} = -10V$, $I_E = 0$, f = 1MHz	—	6.2	—	pF
Noise Figure	NF	$V_{CE} = -6V$, $I_C = -0.1mA$ f = 10Hz, $R_G = 10k\Omega$	—	1	6	dB
		$V_{CE} = -6V$, $I_C = -0.1mA$ f = 1kHz, $R_G = 10k\Omega$	—	0.5	2	
		$V_{CE} = -6V$, $I_C = -0.1mA$ f = 1kHz, $R_G = 100\Omega$	—	2.5	—	

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

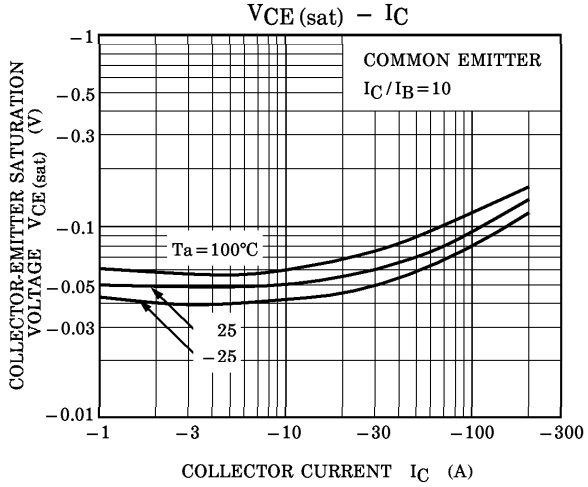
I_C – V_{CE}



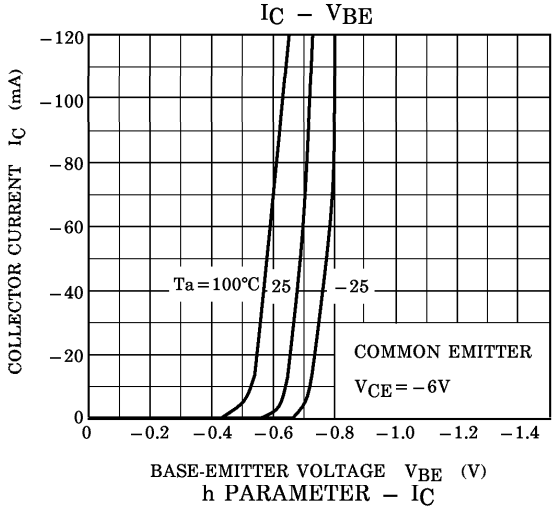
h_{FE} – I_C



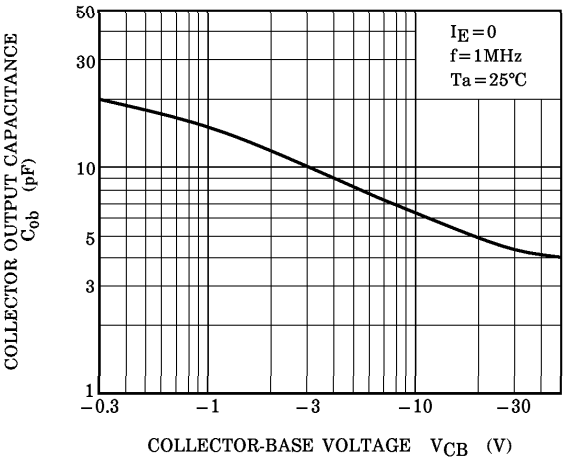
$V_{CE\,(sat)}$ – I_C



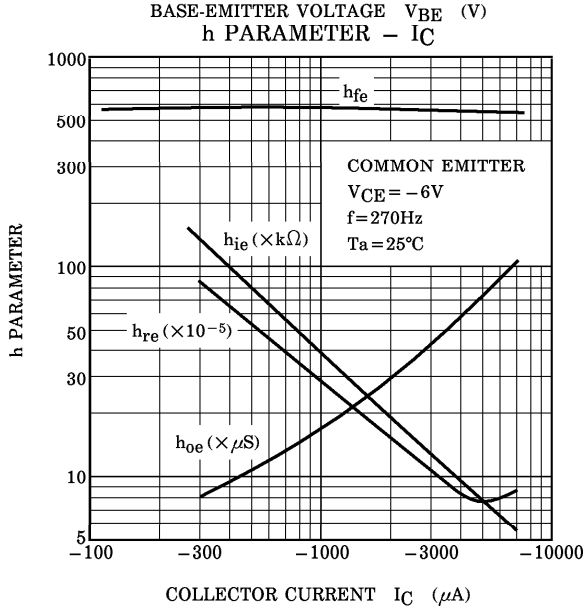
I_C – V_{BE}



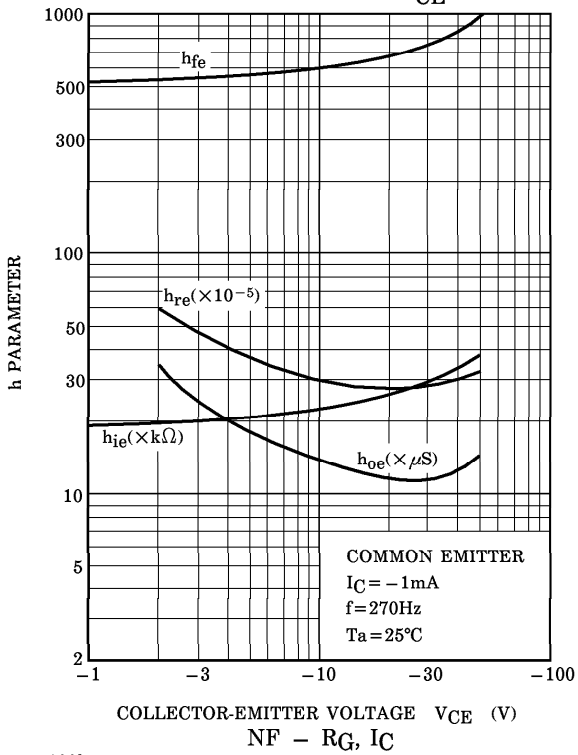
C_{ob} – V_{CB}



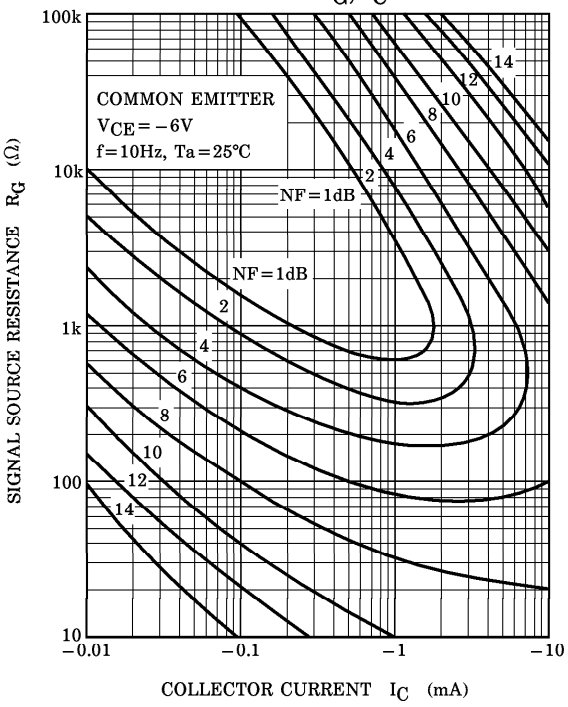
h PARAMETER – I_C



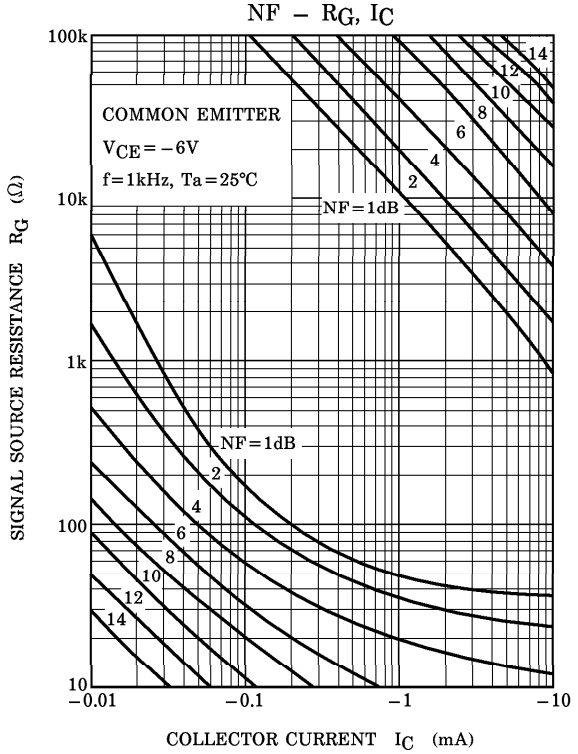
h PARAMETER – V_{CE}



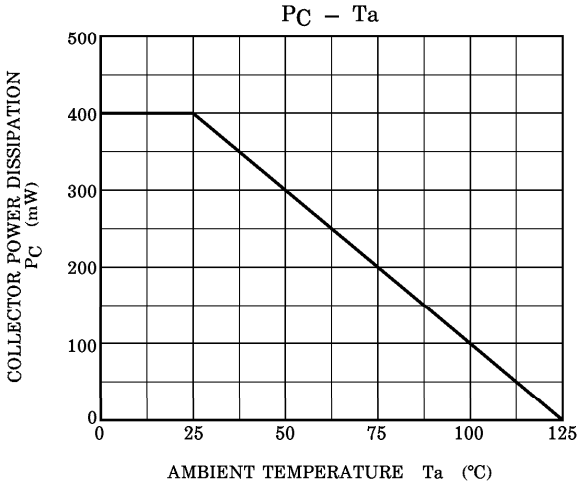
NF – R_G, I_C



NF – R_G, I_C



P_C – Ta



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