

TOSHIBA Transistor Silicon NPN Epitaxial (PCT process)

# 2SC2859

Audio Frequency Low Power Amplifier Applications  
 Driver Stage Amplifier Applications  
 Switching Applications

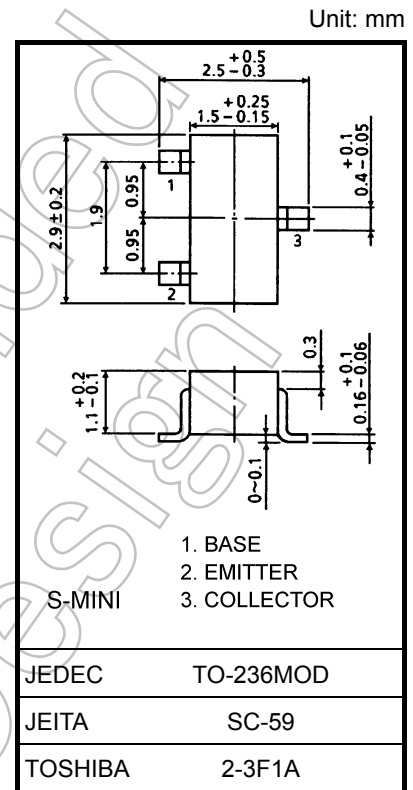
- Excellent  $h_{FE}$  linearity :  $h_{FE} (2) = 25$  (min)  
 ( $V_{CE} = 6$  V,  $I_C = 400$  mA)
- Complementary to 2SA1182.

### Absolute Maximum Ratings ( $T_a = 25^\circ\text{C}$ )

Characteristics	Symbol	Rating	Unit
Collector-base voltage	$V_{CBO}$	35	V
Collector-emitter voltage	$V_{CEO}$	30	V
Emitter-base voltage	$V_{EBO}$	5	V
Collector current	$I_C$	500	mA
Base current	$I_B$	50	mA
Collector power dissipation	$P_C$	150	mW
Junction temperature	$T_j$	125	$^\circ\text{C}$
Storage temperature range	$T_{stg}$	-55 to 125	$^\circ\text{C}$

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).



Weight: 0.012 g (typ.)

### Electrical Characteristics ( $T_a = 25^\circ\text{C}$ )

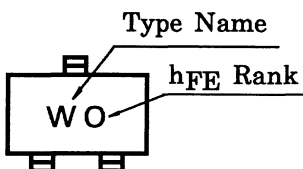
Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	$I_{CBO}$	$V_{CB} = 35$ V, $I_E = 0$	—	—	0.1	$\mu\text{A}$
Emitter cut-off current	$I_{EBO}$	$V_{EB} = 5$ V, $I_C = 0$	—	—	0.1	$\mu\text{A}$
DC current gain (Note)	$h_{FE} (1)$	$V_{CE} = 1$ V, $I_C = 100$ mA	70	—	400	
	$h_{FE} (2)$	$V_{CE} = 6$ V, $I_C = 400$ mA	25	—	—	
Collector-emitter saturation voltage	$V_{CE} (sat)$	$I_C = 100$ mA, $I_B = 10$ mA	—	0.1	0.25	V
Base-emitter voltage	$V_{BE}$	$V_{CE} = 1$ V, $I_C = 100$ mA	—	0.8	1.0	V
Transition frequency	$f_T$	$V_{CE} = 6$ V, $I_C = 20$ mA	—	300	—	MHz
Collector output capacitance	$C_{ob}$	$V_{CB} = 6$ V, $I_E = 0$ , $f = 1$ MHz	—	7	—	pF

Note:  $h_{FE} (1)$  classification O (O): 70 to 140, Y (Y): 120 to 240, GR (G): 200 to 400

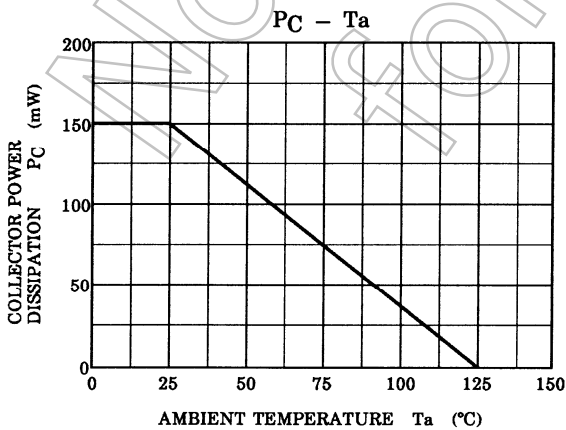
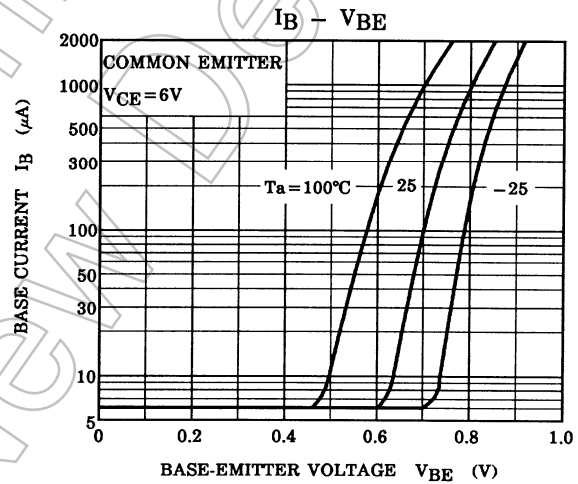
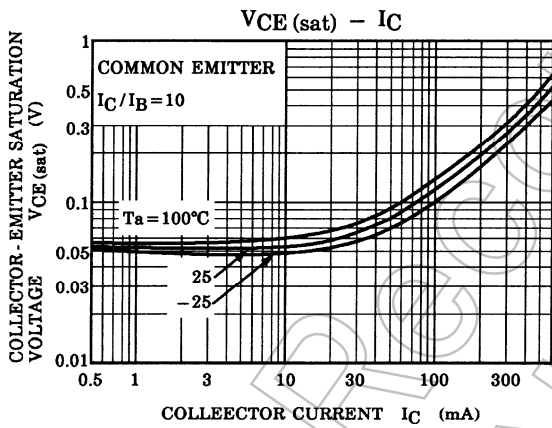
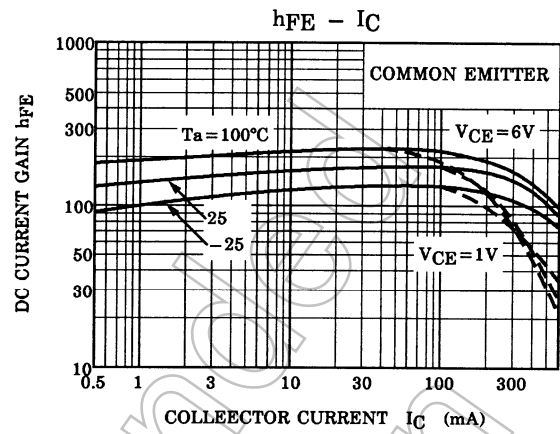
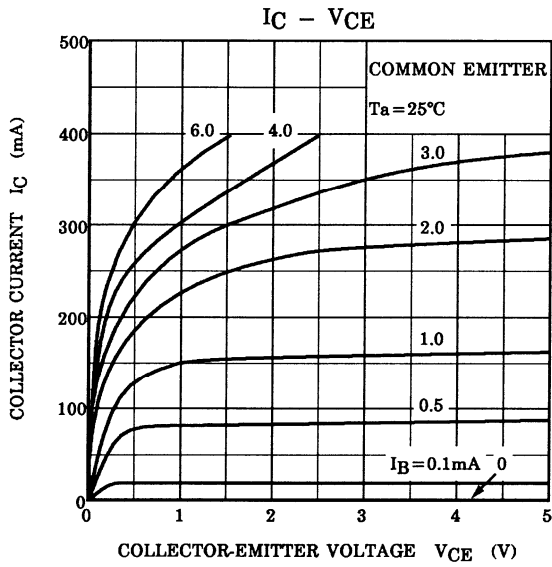
$h_{FE} (2)$  classification O: 25 min, Y: 40 min, GR: 70 min

( ) marking symbol

### Marking



Start of commercial production  
 1982-10



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