

TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT process)

# 2SC4118

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

- Excellent hFE linearity:  $h_{FE} (2) = 25$  (min) ( $V_{CE} = 6\text{ V}$ ,  $I_C = 400\text{ mA}$ )
- Complementary to 2SA1588

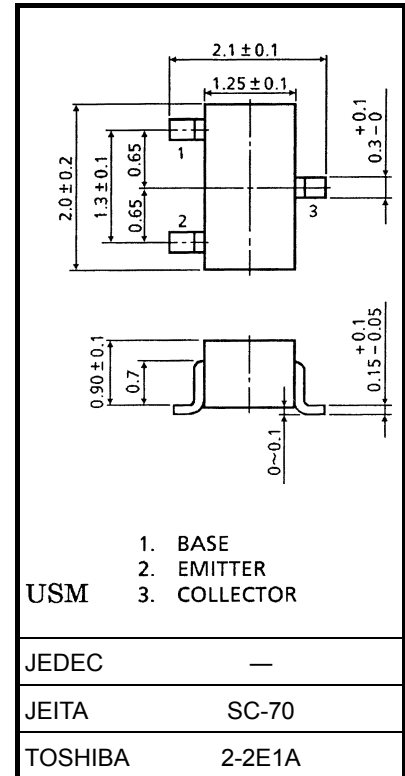
### Absolute Maximum Ratings ( $T_a = 25^\circ\text{C}$ )

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	$P_C$	100	mW
Junction temperature	$T_j$	125	$^\circ\text{C}$
Storage temperature range	$T_{stg}$	-55~125	$^\circ\text{C}$

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.

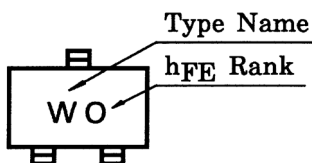
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

Unit: mm



Weight: 0.006 g (typ.)

### Marking

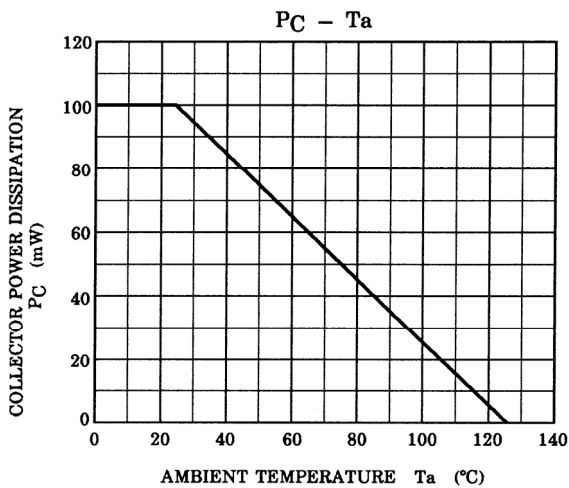
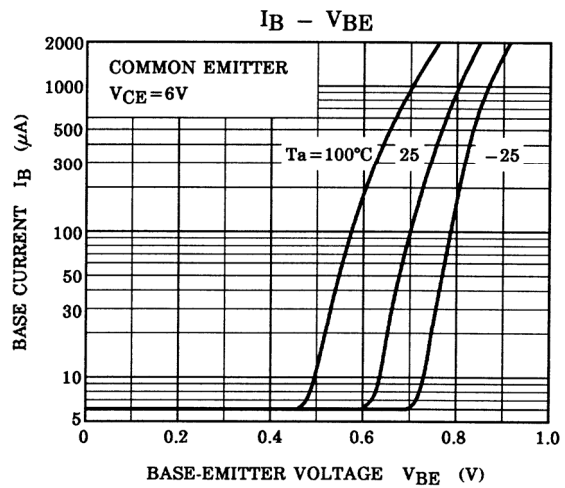
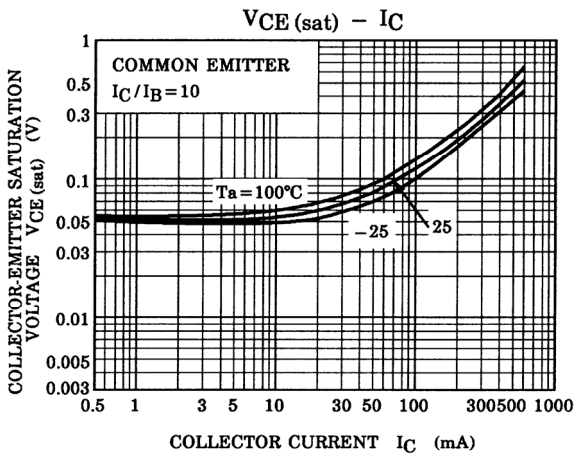
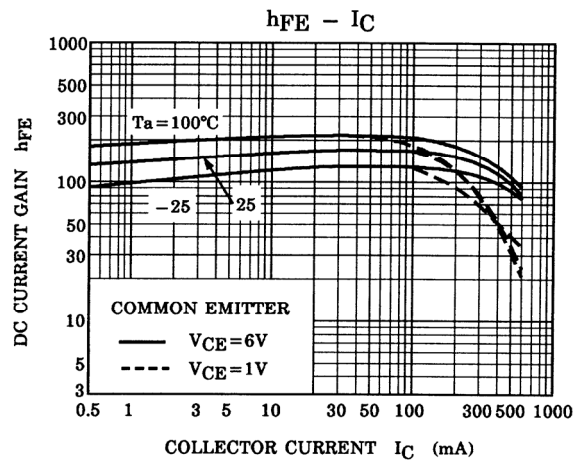
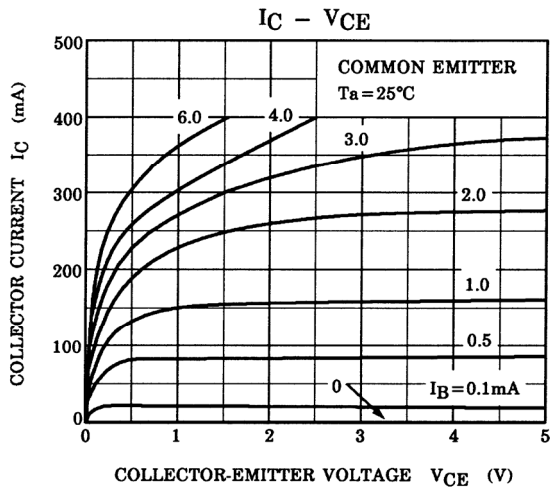


## Electrical Characteristics (Ta = 25°C)

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

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

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



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20070701-EN GENERAL

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