

TOSHIBA Transistor Silicon NPN Epitaxial Type

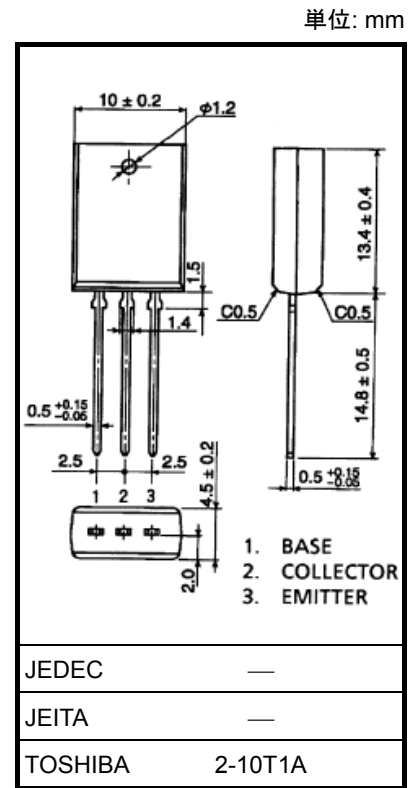
2SC6140

○ Audio Frequency Amplifier Applications

- High collector voltage : $V_{CEO} = 160\text{ V}$
- Small collector output capacitance : $C_{ob} = 12\text{ pF}$ (typ.)
- High transition frequency : $f_T = 100\text{ MHz}$ (typ.)
- Complementary to 2SA2220

Absolute Maximum Ratings (Ta = 25°C)

Characteristics	Symbol	Rating	Unit	
Collector-base voltage	V_{CBO}	160	V	
Collector-emitter voltage	V_{CEO}	160	V	
Emitter-base voltage	V_{EBO}	6	V	
Collector current	DC	I_C	1.5	A
	Pulse	I_{CP}	2.5	A
Base current	I_B	0.5	A	
Collector power dissipation	P_C	1.8	W	
Junction temperature	T_j	150	°C	
Storage temperature range	T_{stg}	-55 to 150	°C	



Weight: 1.5 g (typ.)

Note 1: Ensure that the channel temperature does not exceed 150°C during use of the device.

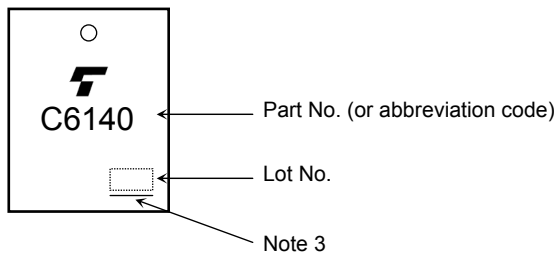
Note 2: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) 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).

Electrical Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	I_{CBO}	$V_{CB} = 160V, I_E = 0$	—	—	100	nA
Emitter cut-off current	I_{EBO}	$V_{EB} = 6V, I_C = 0$	—	—	100	nA
Collector-emitter breakdown voltage	$V_{(BR) CEO}$	$I_C = 10mA, I_B = 0$	160	—	—	V
DC current gain	$h_{FE} (1)$	$V_{CE} = 5V, I_C = 1mA$	80	—	—	
	$h_{FE} (2)$	$V_{CE} = 5V, I_C = 0.1A$	140	—	280	
Collector-emitter saturation voltage	$V_{CE (sat)}$	$I_C = 0.5A, I_B = 50mA$	—	—	0.5	V
Base-emitter saturation voltage	$V_{BE (sat)}$	$I_C = 0.5A, I_B = 50mA$	—	—	1.3	V
Collector output capacitance	C_{ob}	$V_{CB} = 10V, I_C = 0, f = 1MHz$	—	12	—	pF
Transition frequency	f_T	$V_{CE} = 10V, I_C = 100mA$	—	100	—	MHz

Marking

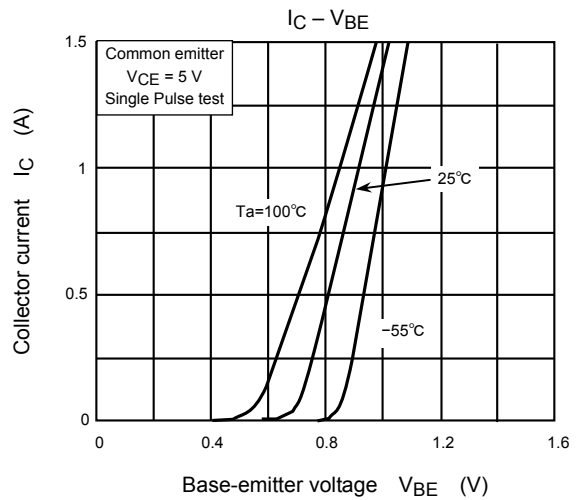
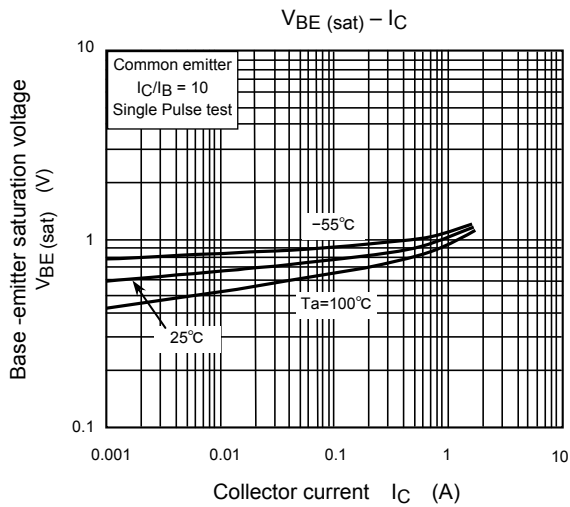
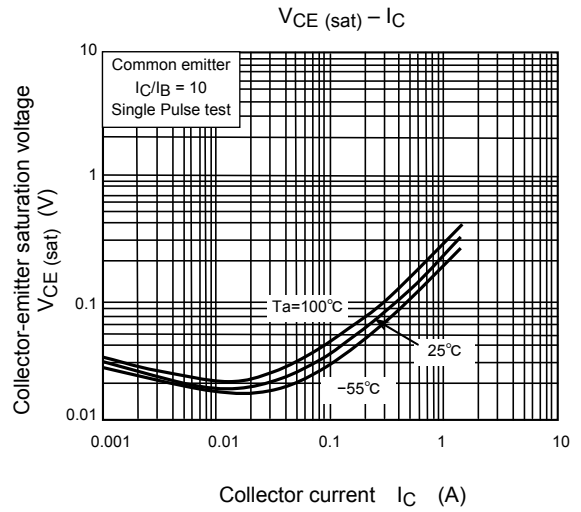
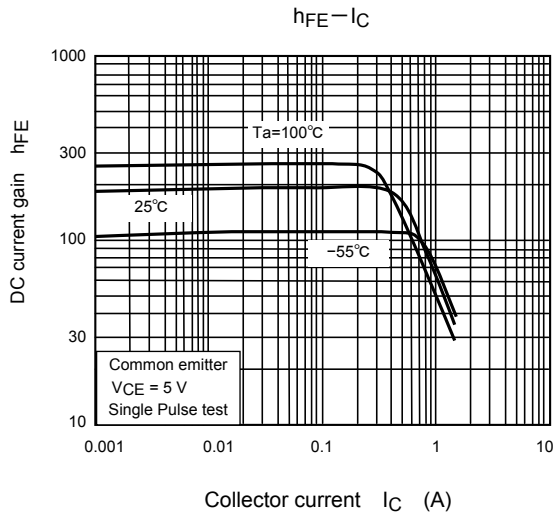
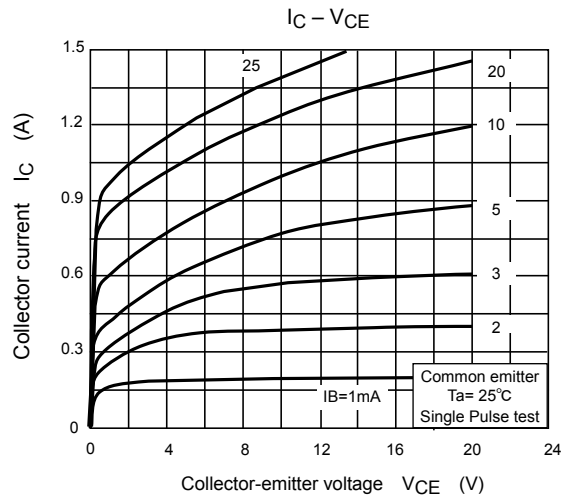
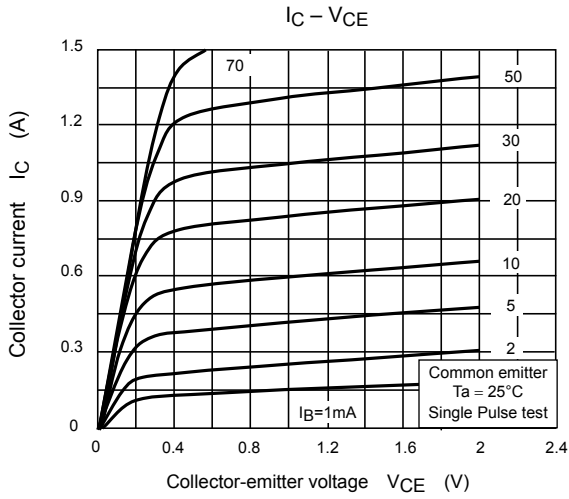


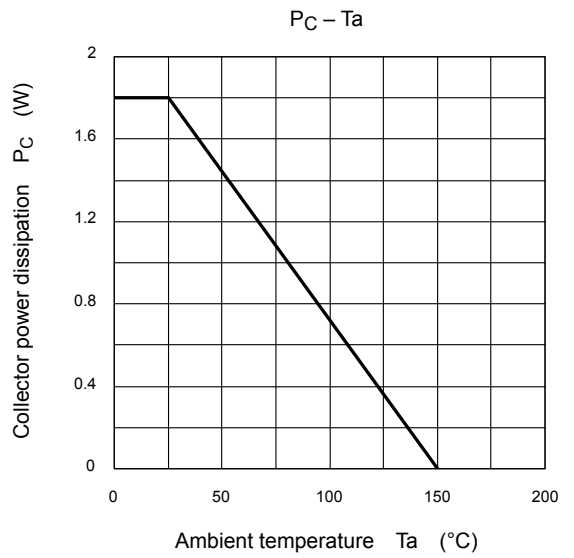
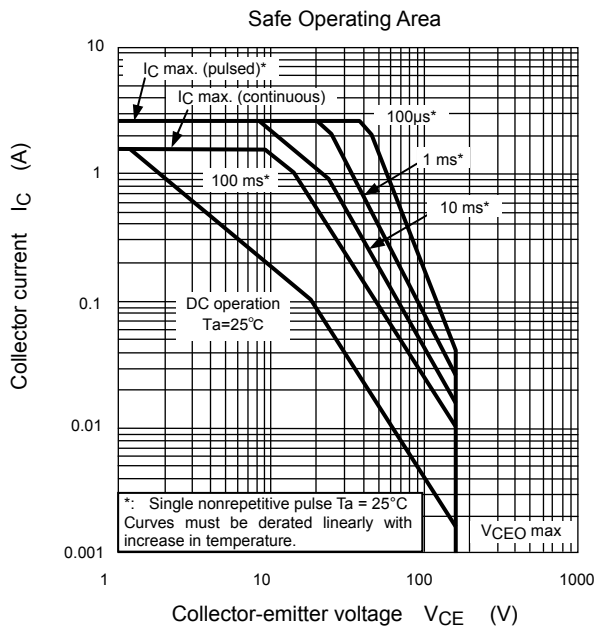
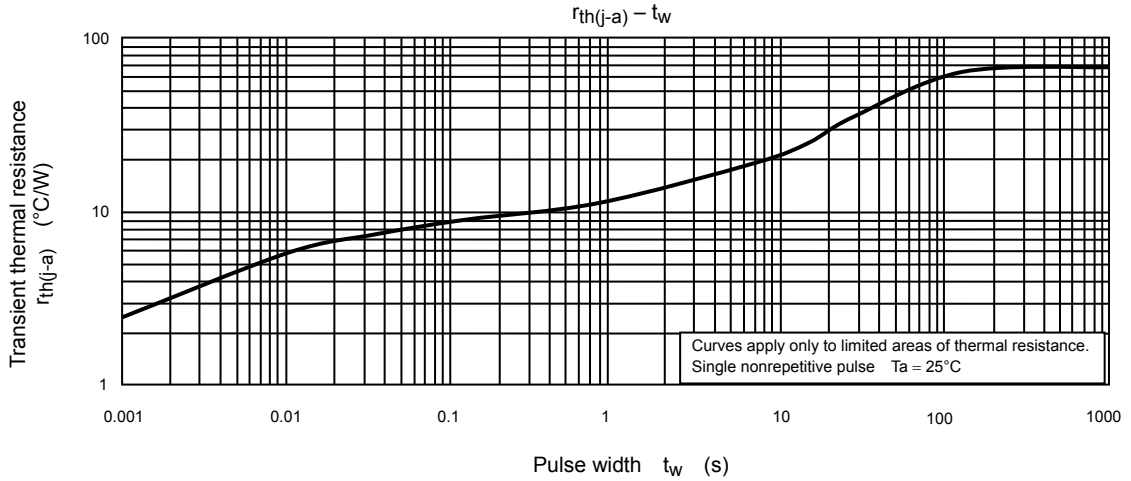
Note 3 : A line under a Lot No. identifies the indication of product Labels.

[[G]]/RoHS COMPATIBLE or [[G]]/RoHS [[Pb]]

Please contact your TOSHIBA sales representative for details as to environmental matters such as the RoHS compatibility of Product.

The RoHS is the Directive 2002/95/EC of the European Parliament and of the Council of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.





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