Unit: mm

TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT Process)

2SA1013

Color TV Verttical Deflection Output Applications Power Switching Applications

- High voltage: $V_{\rm CEO} = -160 \text{ V}$
- Large continuous collector current capability
- Recommended for vertical deflection output & sound output applications for line-operated TV.
- Complementary to 2SC2383.

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	IC	-1	Α
Base current	ΙΒ	-0.5	Α
Collector power dissipation	PC	900	mW
Junction temperature	Tj	150	°C
Storage temperature range	T _{stg}	-55 to 150	°C

Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in

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Weight: 0.36 g (typ.)

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).

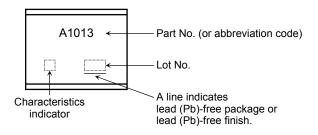


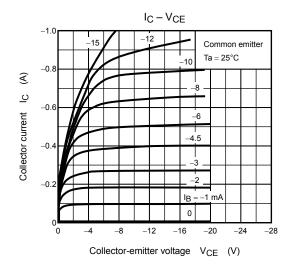
Electrical Characteristics (Ta = 25°C)

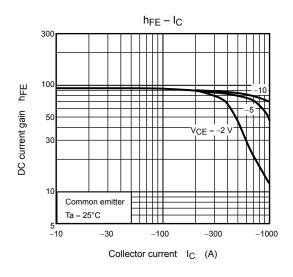
Characteristics	Symbol	Test Condition	Min	Тур.	Max	Unit
Collector cut-off current	I _{CBO}	$V_{CB} = -150 \text{ V}, I_E = 0$	_	_	-1.0	μΑ
Emitter cut-off current	I _{EBO}	$V_{EB} = -6 \text{ V}, I_C = 0$	_	_	-1.0	μA
Collector-emitter breakdown voltage	V (BR) CEO	$I_C = -10 \text{ mA}, I_B = 0$	-160	_	_	V
DC current gain	h _{FE} (Note)	$V_{CE} = -5 \text{ V}, I_{C} = -200 \text{ mA}$	60	_	200	
Collector-emitter saturation voltage	V _{CE} (sat)	$I_C = -500 \text{ mA}, I_B = -50 \text{ mA}$	_	_	-1.5	V
Base-emitter voltage	V _{BE}	$V_{CE} = -5 \text{ V}, I_{C} = -5 \text{ mA}$	-0.45	_	-0.75	V
Transition frequency	f _T	$V_{CE} = -5 \text{ V}, I_{C} = -200 \text{ mA}$	15	50	_	MHz
Collector output capacitance	C _{ob}	$V_{CB} = -10 \text{ V}, I_E = 0, f = 1 \text{ MHz}$	_	_	35	pF

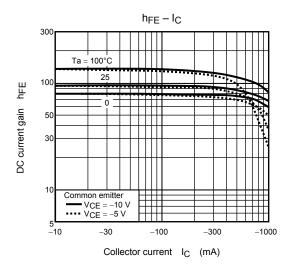
Note: hFE classification R: 60 to 120, O: 100 to 200

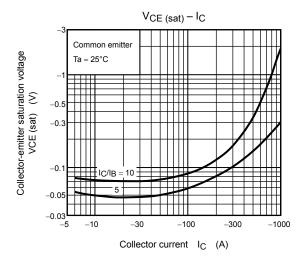
Marking

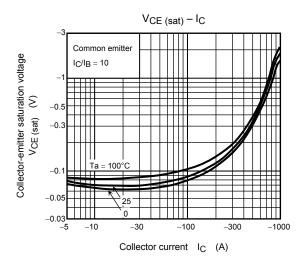


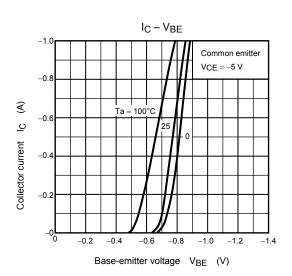


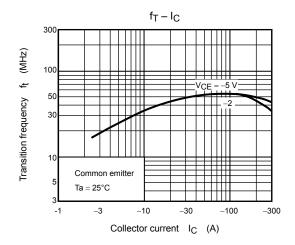


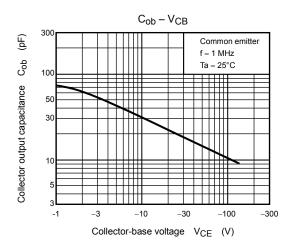


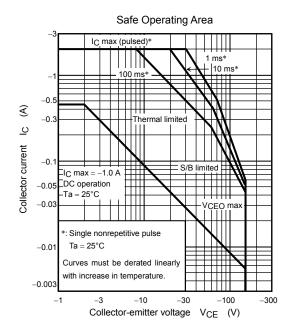












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20070701-EN

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