

TOSHIBA Transistor Silicon PNP Epitaxial Type

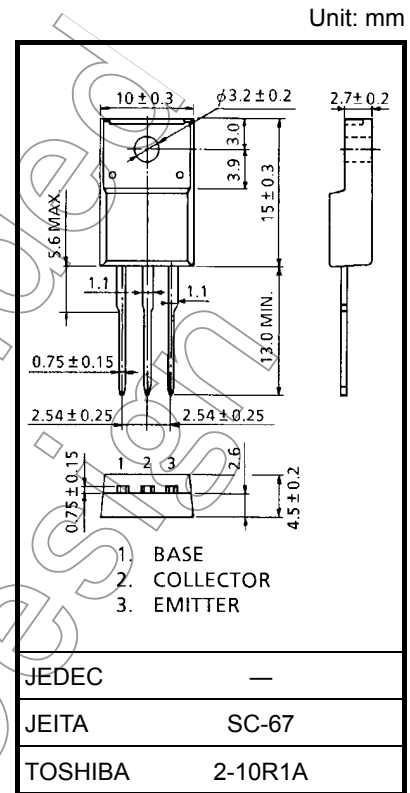
# 2SA1930

Power Amplifier Applications  
 Driver Stage Amplifier Applications

- High transition frequency:  $f_T = 200 \text{ MHz (typ.)}$
- Complementary to 2SC5171

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

Characteristics		Symbol	Rating	Unit
Collector-base voltage		$V_{CBO}$	-180	V
Collector-emitter voltage		$V_{CEO}$	-180	V
Emitter-base voltage		$V_{EBO}$	-5	V
Collector current		$I_C$	-2	A
Base current		$I_B$	-1	A
Collector power dissipation	$T_a = 25^\circ\text{C}$	$P_C$	2.0	W
	$T_c = 25^\circ\text{C}$		20	
Junction temperature		$T_j$	150	$^\circ\text{C}$
Storage temperature range		$T_{stg}$	-55 to 150	$^\circ\text{C}$



Weight: 1.7 g (typ.)

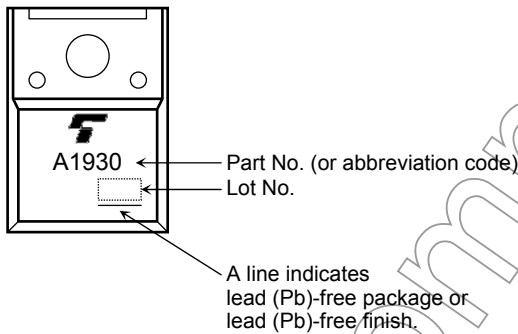
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.)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

Not for New

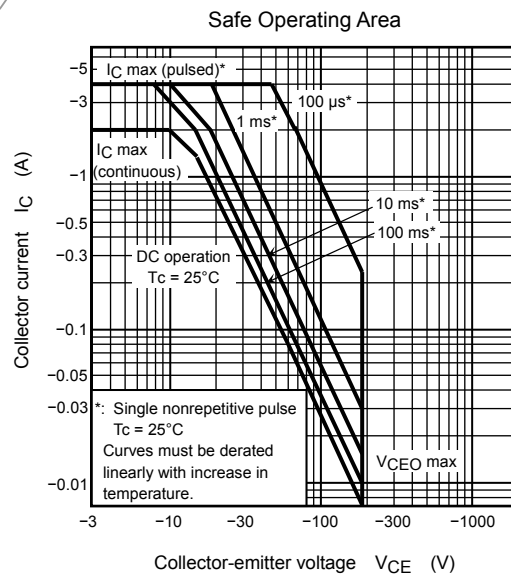
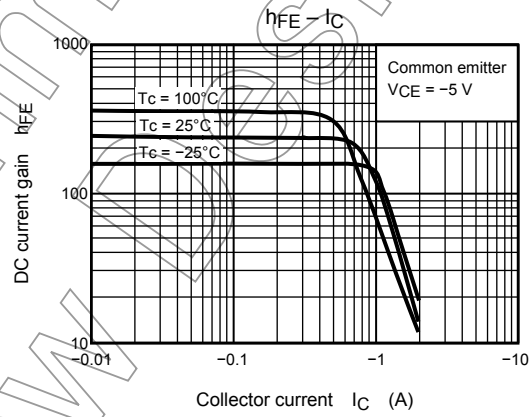
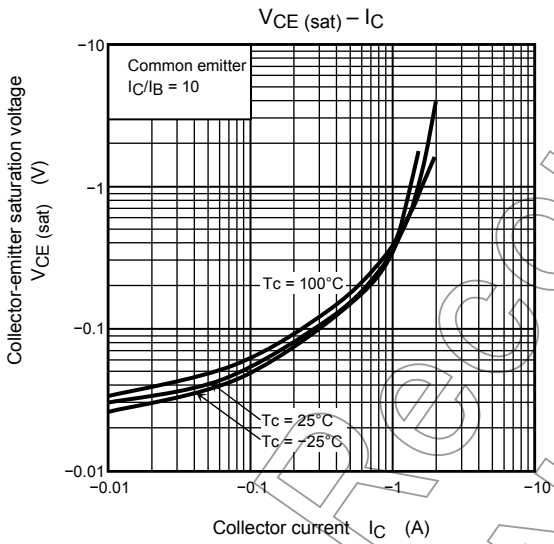
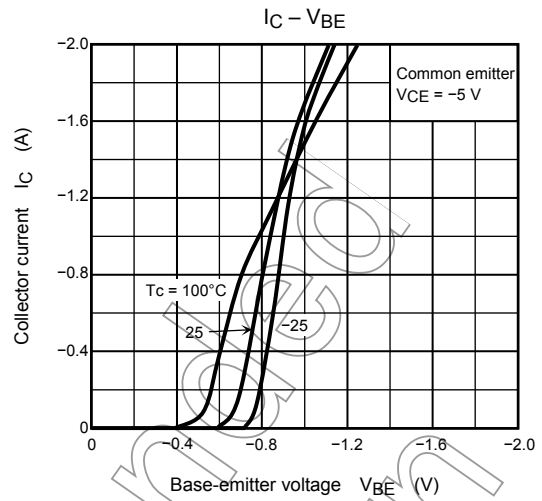
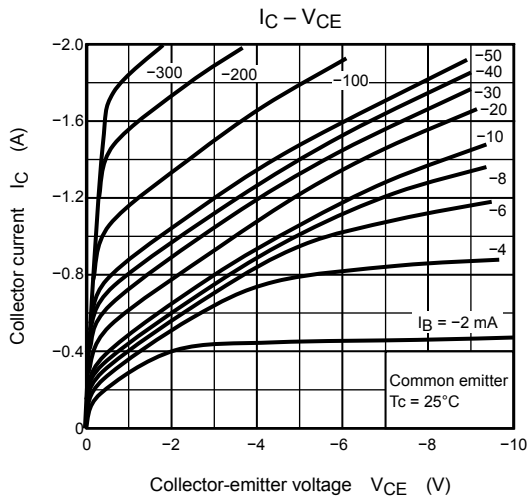
## Electrical Characteristics (Tc = 25°C)

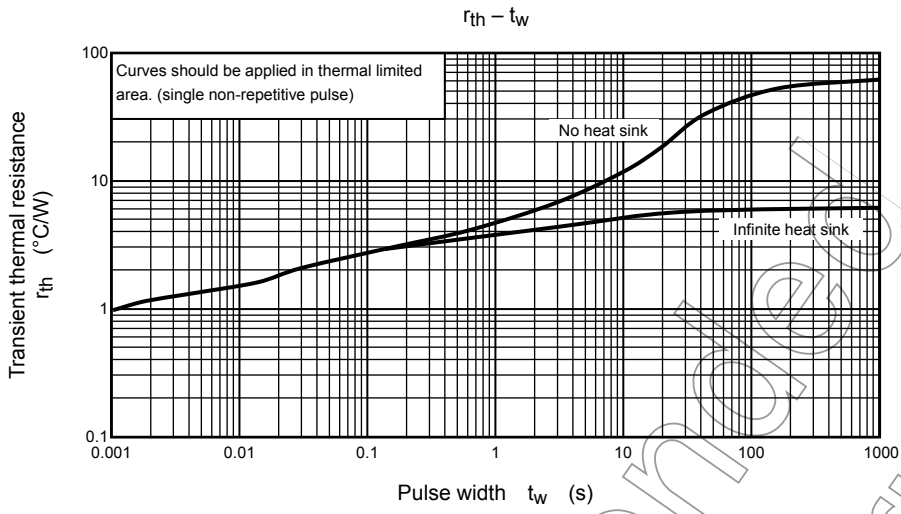
Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	$I_{CBO}$	$V_{CB} = -180\text{ V}, I_E = 0$	—	—	-5.0	$\mu\text{A}$
Emitter cut-off current	$I_{EBO}$	$V_{EB} = -5\text{ V}, I_C = 0$	—	—	-5.0	$\mu\text{A}$
Collector-emitter breakdown voltage	$V_{(BR) CEO}$	$I_C = -10\text{ mA}, I_B = 0$	-180	—	—	V
DC current gain	$h_{FE} (1)$	$V_{CE} = -5\text{ V}, I_C = -0.1\text{ A}$	100	—	320	
	$h_{FE} (2)$	$V_{CE} = -5\text{ V}, I_C = -1\text{ A}$	50	—	—	
Collector-emitter saturation voltage	$V_{CE (sat)}$	$I_C = -1\text{ A}, I_B = -0.1\text{ A}$	—	-0.24	-1.0	V
Base-emitter voltage	$V_{BE}$	$V_{CE} = -5\text{ V}, I_C = -1\text{ A}$	—	-0.68	-1.5	V
Transition frequency	$f_T$	$V_{CE} = -10\text{ V}, I_C = -0.3\text{ A}$	—	200	—	MHz
Collector output capacitance	$C_{ob}$	$V_{CB} = -10\text{ V}, I_C = 0, f = 1\text{ MHz}$	—	26	—	pF

## Marking



Not Recommended for New Design





Not Recommended for New Design

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