

TOSHIBA Transistor Silicon PNP Epitaxial Type

# 2SA2066

High-Speed Switching Applications  
DC-DC Converter Applications

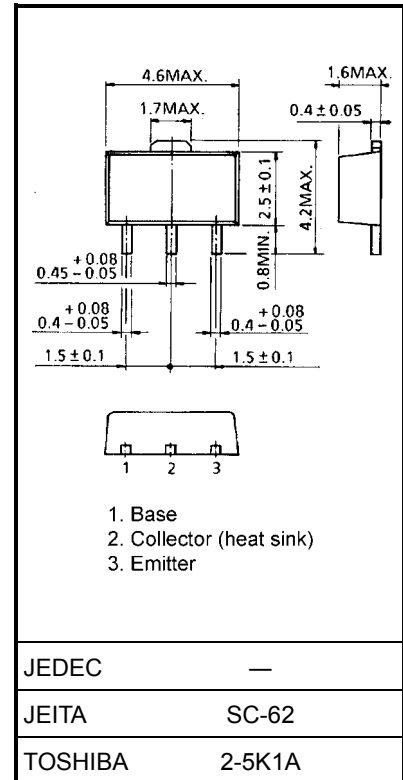
- High DC current gain:  $h_{FE} = 200$  to  $500$  ( $I_C = -0.2$  A)
- Low collector-emitter saturation voltage:  $V_{CE(sat)} = -0.19$  V (max)
- High-speed switching:  $t_f = 25$  ns (typ.)

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

Characteristics	Symbol	Rating	Unit
Collector-base voltage	$V_{CBO}$	-20	V
Collector-emitter voltage	$V_{CEO}$	-10	V
Emitter-base voltage	$V_{EBO}$	-7	V
Collector current	DC	$I_C$	-2.0
	Pulse	$I_{CP}$	-3.5
Base current	$I_B$	-200	mA
Collector power dissipation	$t = 10$ s	$P_C$	2.0
	DC	(Note 1)	1.0
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature range	$T_{stg}$	-55 to 150	$^\circ\text{C}$

Note 1: Mounted on FR4 board (glass epoxy, 1.6 mm thick, Cu area:  $645\text{ mm}^2$ )

Unit: mm



Weight: 0.05 g (typ.)

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

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	$I_{CBO}$	$V_{CB} = -20$ V, $I_E = 0$	—	—	-0.1	$\mu\text{A}$
Emitter cut-off current	$I_{EBO}$	$V_{EB} = -7$ V, $I_C = 0$	—	—	-0.1	$\mu\text{A}$
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = -10$ mA, $I_B = 0$	-10	—	—	V
DC current gain	$h_{FE(1)}$	$V_{CE} = -2$ V, $I_C = -0.2$ A	200	—	500	
	$h_{FE(2)}$	$V_{CE} = -2$ V, $I_C = -0.6$ A	125	—	—	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -0.6$ A, $I_B = -0.02$ A	—	—	-0.19	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = -0.6$ A, $I_B = -0.02$ A	—	—	-1.1	V
Switching time	Rise time	$t_r$	—	50	—	ns
	Storage time	$t_{stg}$	—	115	—	
	Fall time	$t_f$	—	25	—	

See Figure 1 circuit diagram.

$V_{CC} \approx -6$  V,  $R_L = 10 \Omega$

$-I_{B1} = I_{B2} = -20$  mA

Marking

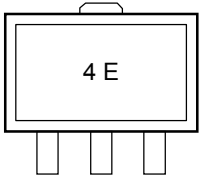
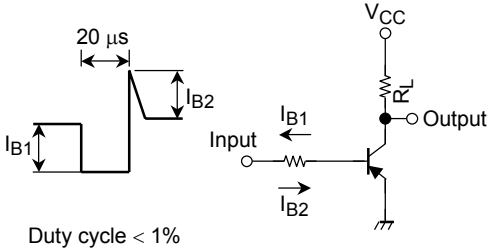
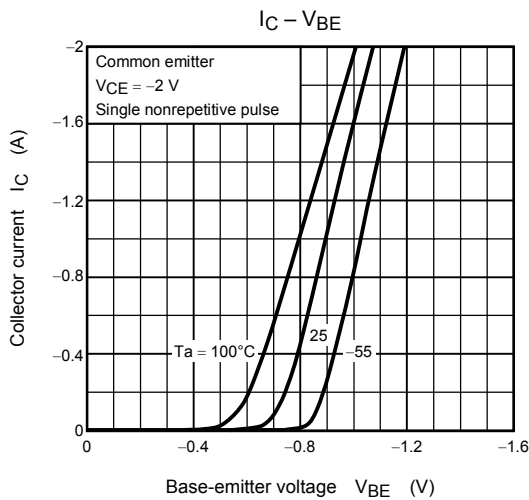
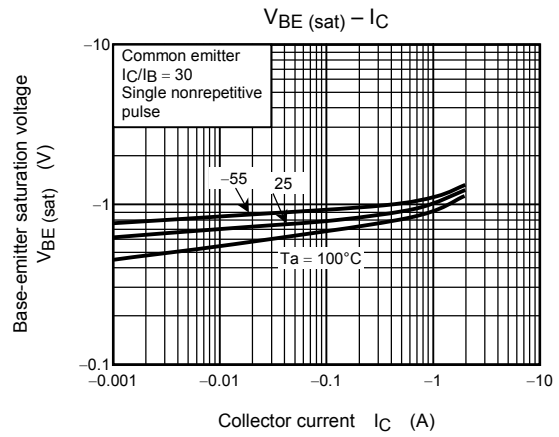
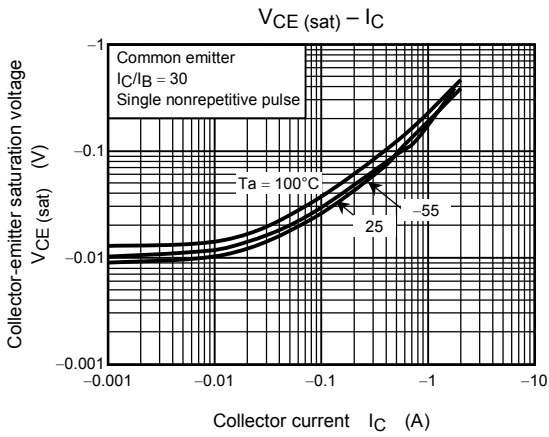
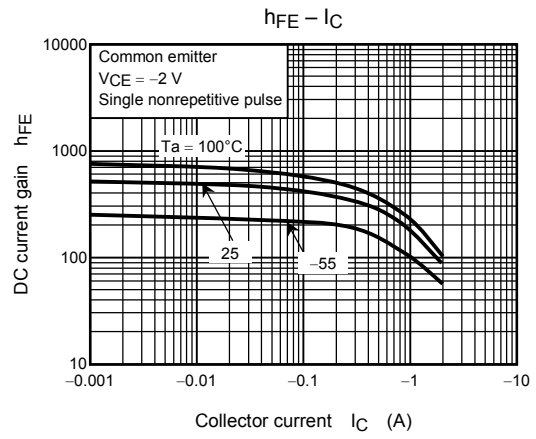
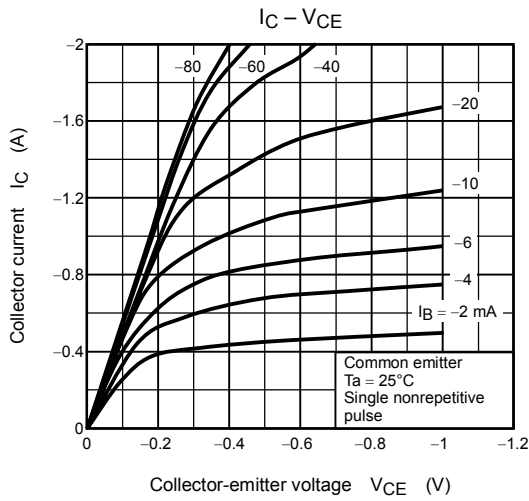
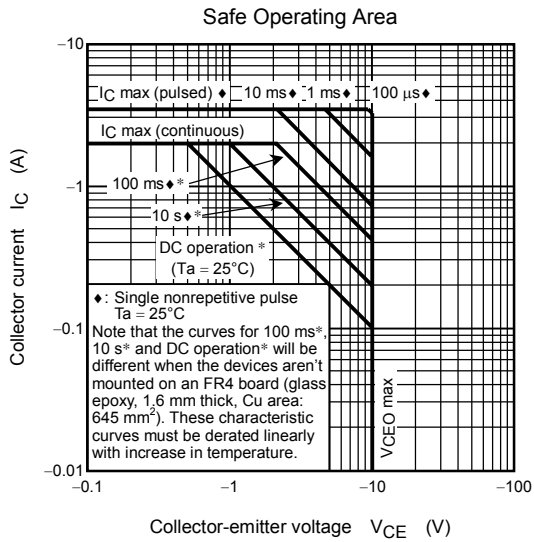
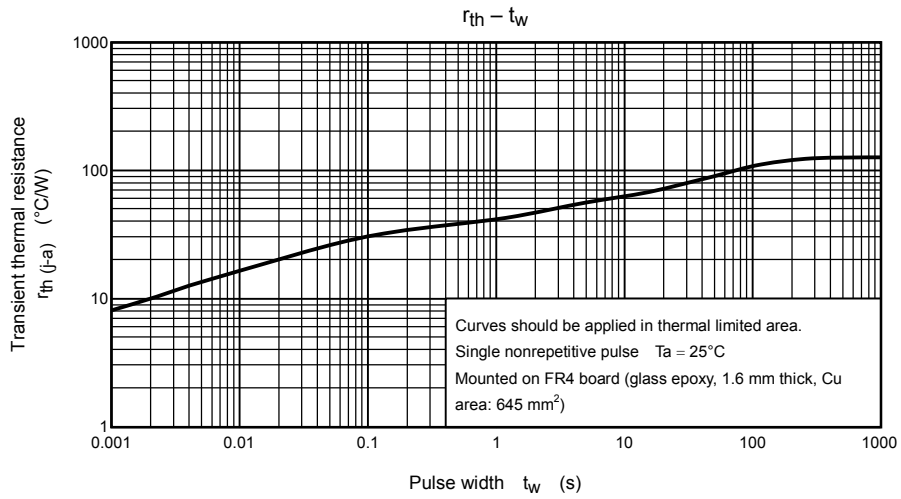


Figure 1 Switching Time Test Circuit & Timing Chart





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