

TOSHIBA Transistor Silicon NPN Epitaxial Type

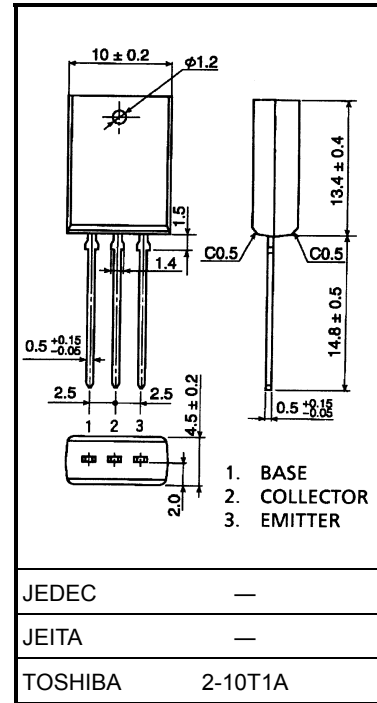
# 2SC5175

## High-Current Switching Applications

- Low collector-emitter saturation voltage:  $V_{CE(sat)} = 0.4\text{ V (max)}$   
( $I_C = 2.5\text{ A}, I_B = 125\text{ mA}$ )
- High-speed switching:  $t_{stg} = 0.8\text{ }\mu\text{s (typ.)}$

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

Characteristics		Symbol	Rating	Unit
Collector-base voltage		$V_{CBO}$	60	V
Collector-emitter voltage		$V_{CEO}$	50	V
Emitter-base voltage		$V_{EBO}$	5	V
Collector current	DC	$I_C$	5	A
	Pulse	$I_{CP}$	8	
Base current		$I_B$	1	A
Collector power dissipation		$P_C$	1.8	W
Junction temperature		$T_j$	150	$^\circ\text{C}$
Storage temperature range		$T_{stg}$	-55 to 150	$^\circ\text{C}$



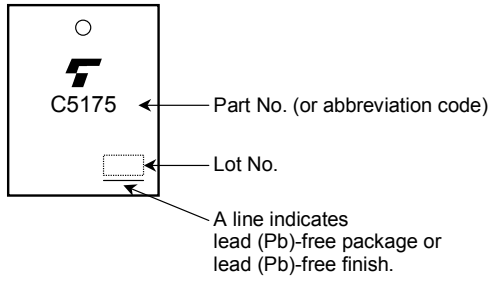
Weight: 1.5 g (typ.)

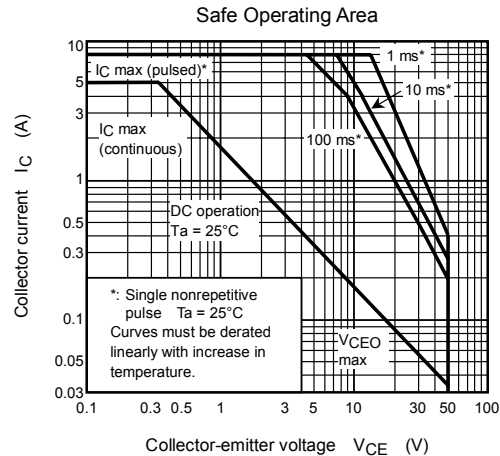
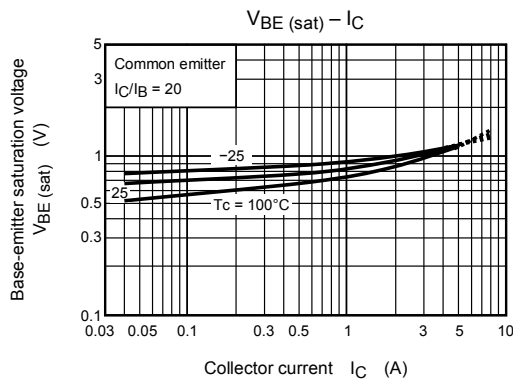
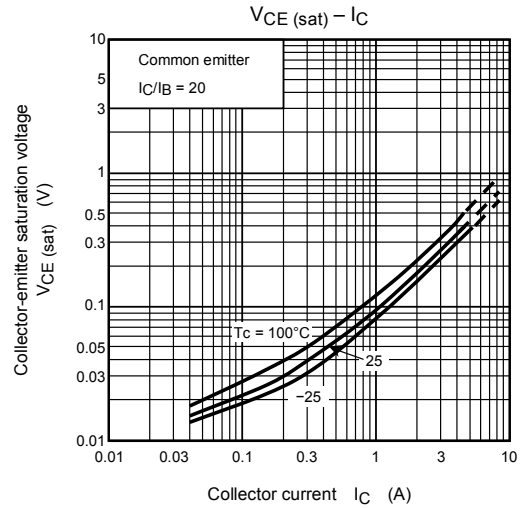
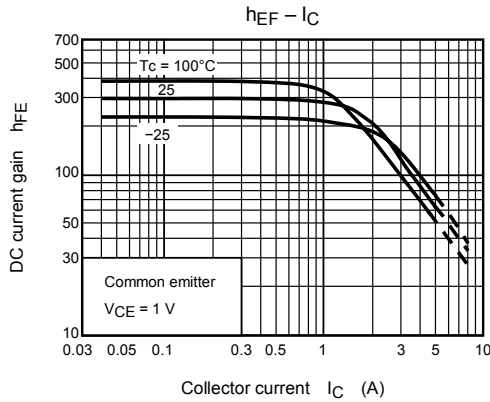
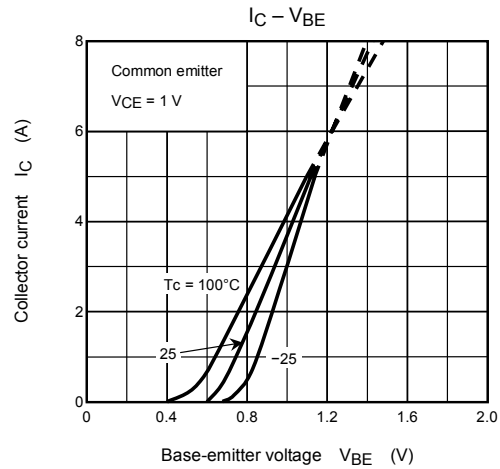
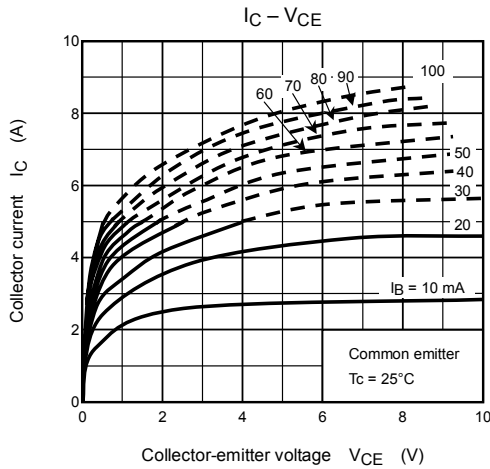
## Electrical Characteristics ( $T_a = 25^\circ\text{C}$ )

Characteristics		Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current		$I_{CBO}$	$V_{CB} = 50\text{ V}, I_E = 0$	—	—	1	$\mu\text{A}$
Emitter cut-off current		$I_{EBO}$	$V_{EB} = 6\text{ V}, I_C = 0$	—	—	1	$\mu\text{A}$
Collector-emitter breakdown voltage		$V_{(BR)CEO}$	$I_C = 10\text{ mA}, I_B = 0$	50	—	—	V
DC current gain		$h_{FE(1)}$	$V_{CE} = 1\text{ V}, I_C = 1\text{ A}$	100	—	320	
		$h_{FE(2)}$	$V_{CE} = 1\text{ V}, I_C = 2.5\text{ A}$	60	—	—	
Collector-emitter saturation voltage		$V_{CE(sat)}$	$I_C = 2.5\text{ A}, I_B = 125\text{ mA}$	—	0.25	0.4	V
Base-emitter saturation voltage		$V_{BE(sat)}$	$I_C = 2.5\text{ A}, I_B = 125\text{ mA}$	—	1.0	1.3	V
Transition frequency		$f_T$	$V_{CE} = 4\text{ V}, I_C = 1\text{ A}$	—	100	—	MHz
Collector output capacitance		$C_{ob}$	$V_{CB} = 10\text{ V}, I_E = 0, f = 1\text{ MHz}$	—	45	—	pF
Switching time	Turn-on time	$t_{on}$		—	0.1	—	$\mu\text{s}$
	Storage time	$t_{stg}$		—	0.8	—	
	Fall time	$t_f$		—	0.1	—	

$I_{B1} = -I_{B2} = 125\text{ mA}, \text{ duty cycle } \leq 1\%$

## Marking





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