

TOSHIBA TRANSISTOR SILICON NPN TRIPLE DIFFUSED TYPE

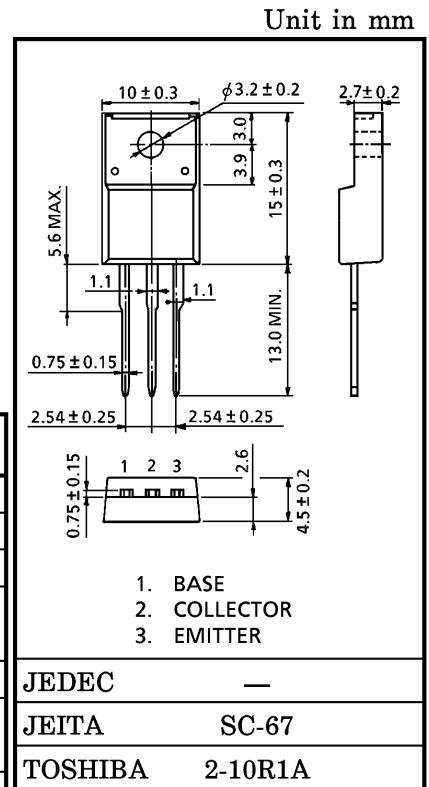
# 2SC5459

SWITCHING REGULATOR APPLICATIONS  
 HIGH VOLTAGE SWITCHING APPLICATIONS  
 DC-DC CONVERTER APPLICATIONS

- High Speed Switching :  $t_f = 0.3 \mu s$  (Max.) ( $I_C = 1.2 A$ )
- High Collector Breakdown Voltage :  $V_{CEO} = 400 V$
- High DC Current Gain :  $h_{FE} = 20$  (Min.) ( $I_C = 0.3 A$ )

MAXIMUM RATINGS ( $T_c = 25^\circ C$ )

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	$V_{CBO}$	600	V
Collector-Emitter Voltage	$V_{CEO}$	400	V
Emitter-Base Voltage	$V_{EBO}$	7	V
Collector Current	DC	$I_C$	3
	Pulse	$I_{CP}$	5
Base Current	$I_B$	1	A
Collector Power Dissipation	$T_a = 25^\circ C$	$P_C$	2.0
	$T_c = 25^\circ C$		25
Junction Temperature	$T_j$	150	$^\circ C$
Storage Temperature Range	$T_{stg}$	-55~150	$^\circ C$

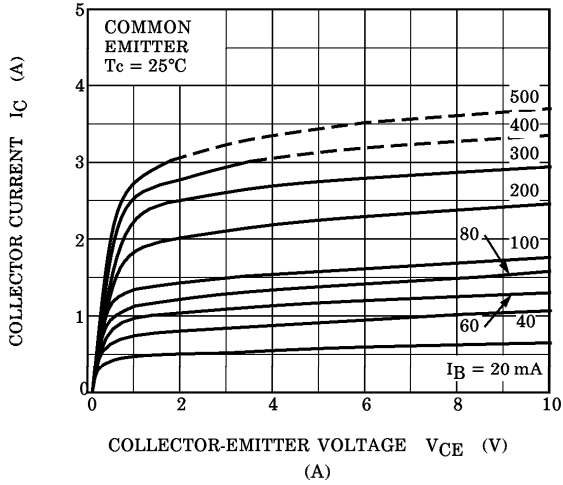


Weight : 1.7 g (Typ.)

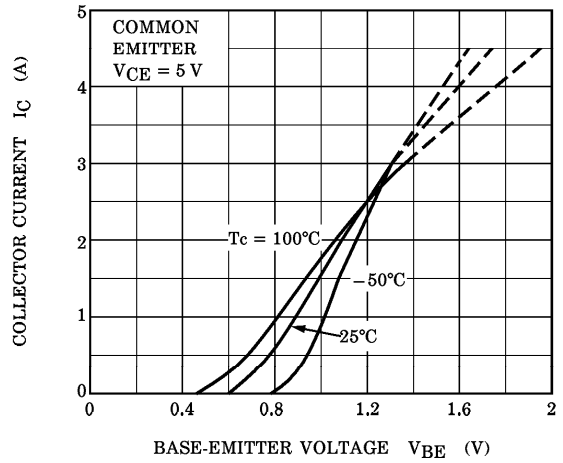
ELECTRICAL CHARACTERISTICS ( $T_c = 25^\circ C$ )

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT		
Collector Cut-off Current	$I_{CBO}$	$V_{CB} = 480 V, I_E = 0$	—	—	100	$\mu A$		
Emitter Cut-off Current	$I_{EBO}$	$V_{EB} = 7 V, I_C = 0$	—	—	10	$\mu A$		
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 1 mA, I_B = 0$	600	—	—	V		
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 10 mA, I_B = 0$	400	—	—	V		
DC Current Gain	$h_{FE(1)}$	$V_{CE} = 5 V, I_C = 1 mA$	13	—	—			
	$h_{FE(2)}$	$V_{CE} = 5 V, I_C = 0.3 A$	20	—	—			
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 1.2 A, I_B = 0.15 A$	—	—	1.0	V		
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 1.2 A, I_B = 0.15 A$	—	—	1.3	V		
Switching Time	Turn-on Time	$t_r$			—	—	0.5	$\mu s$
	Storage Time	$t_{stg}$			—	—	2.0	
	Fall Time	$t_f$	$I_{B1} = 0.15 A, I_{B2} = -0.3 A$ DUTY CYCLE $\leq 1\%$		—	—	0.3	

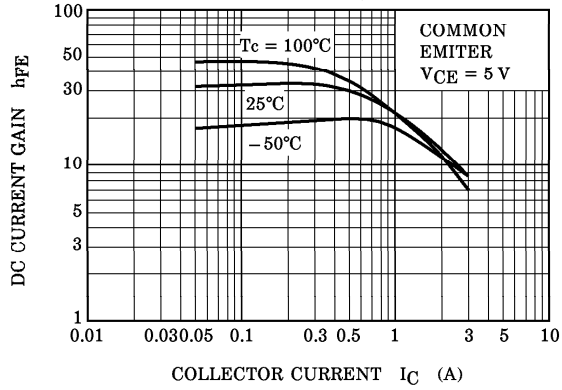
$I_C - V_{CE}$



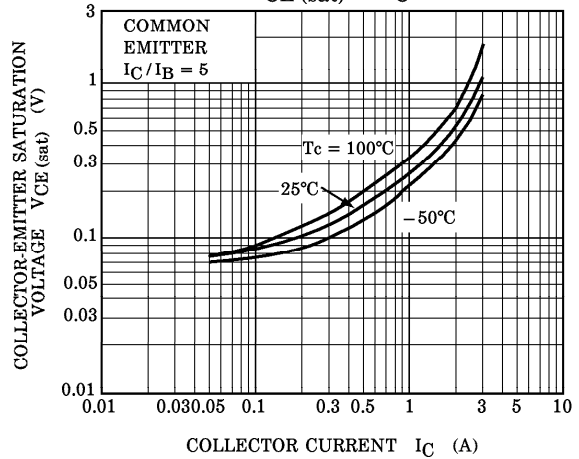
$I_C - V_{BE}$



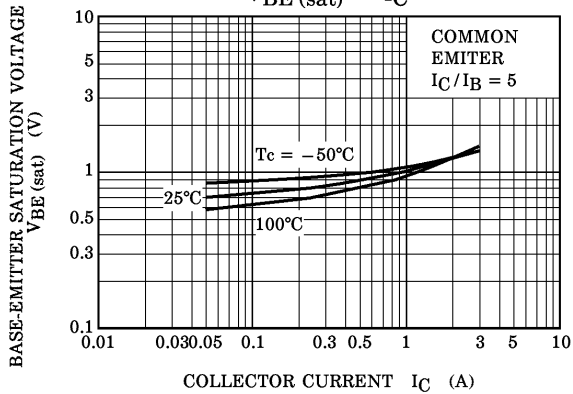
$h_{FE} - I_C$



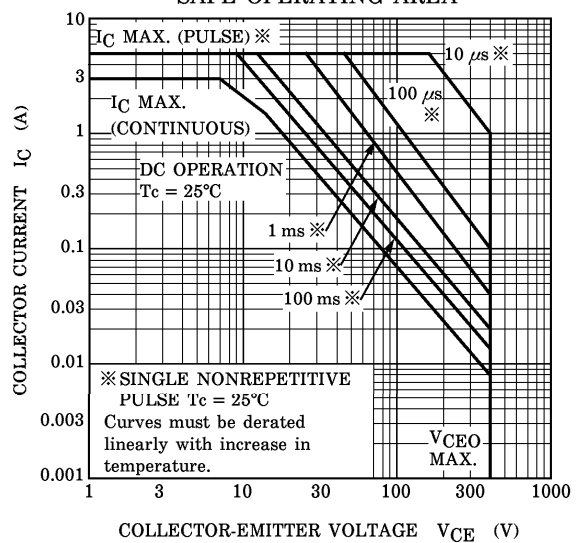
$V_{CE(sat)} - I_C$



$V_{BE(sat)} - I_C$



SAFE OPERATING AREA



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