TOSHIBA TRANSISTOR SILICON NPN TRIPLE DIFFUSED TYPE

2SC5459

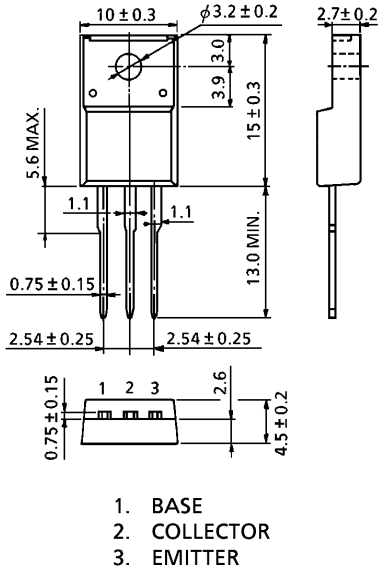
SWITCHING REGULATOR APPLICATIONS

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)

Unit in mm



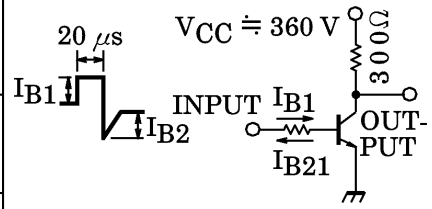
JEDEC	—
JEITA	SC-67
TOSHIBA	2-10R1A

Weight : 1.7 g (Typ.)

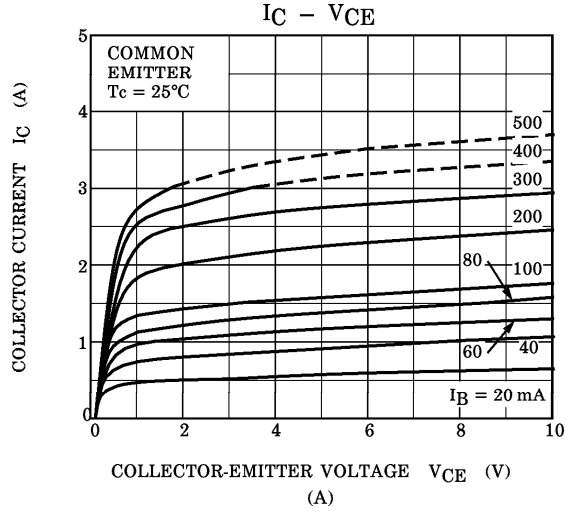
MAXIMUM RATINGS (Tc = 25°C)

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	A
	Pulse	I_{CP}	5	
Base Current		I_B	1	A
Collector Power Dissipation	Ta = 25°C	P_C	2.0	W
	Tc = 25°C		25	
Junction Temperature		T_j	150	°C
Storage Temperature Range		T_{stg}	−55~150	°C

ELECTRICAL CHARACTERISTICS (Tc = 25°C)

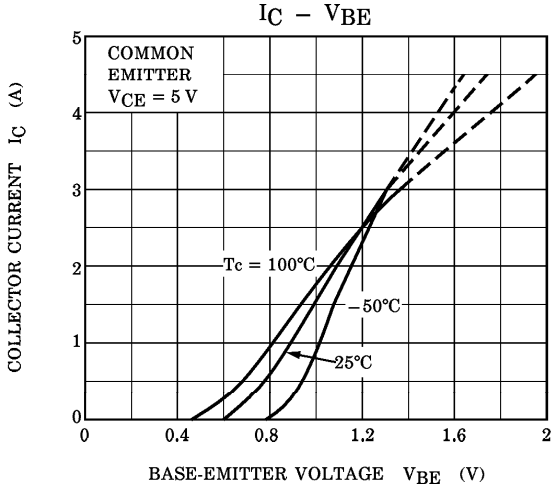
CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current		I_{CBO}	$V_{CB} = 480$ V, $I_E = 0$	—	—	100	μA
Emitter Cut-off Current		I_{EBO}	$V_{EB} = 7$ V, $I_C = 0$	—	—	10	μA
Collector-Base Breakdown Voltage		$V_{(BR)CBO}$	$I_C = 1$ mA, $I_B = 0$	600	—	—	V
Collector-Emitter 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	μs
	Storage Time	t_{stg}		—	—	2.0	
	Fall Time	t_f	$I_{B1} = 0.15$ A, $I_{B2} = -0.3$ A DUTY CYCLE ≦ 1%	—	—	0.3	

I_C – V_{CE}

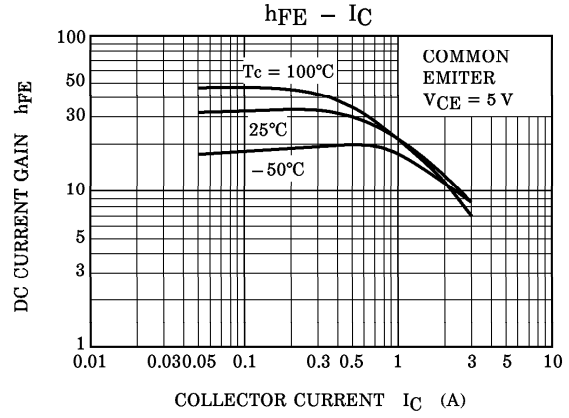


(A)

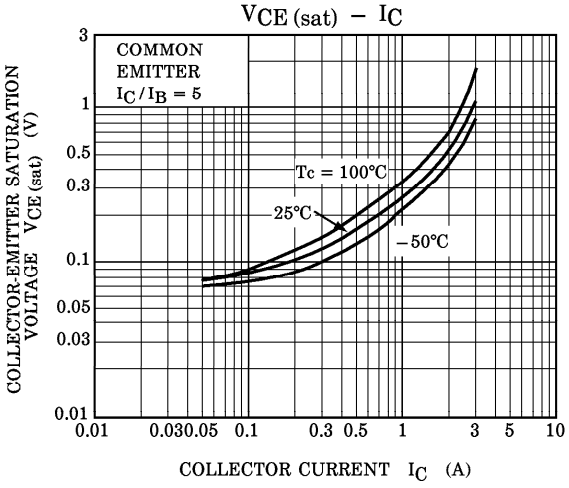
I_C – V_{BE}



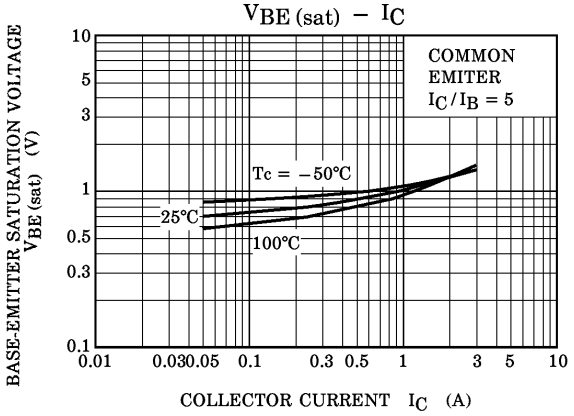
h_{FE} – I_C



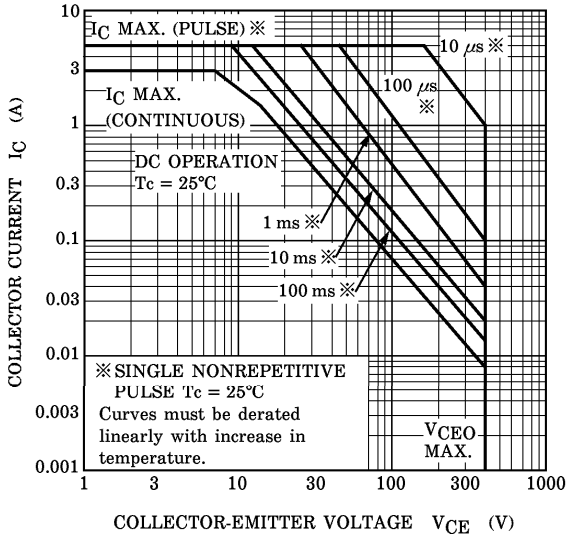
$V_{CE\,(sat)}$ – I_C



$V_{BE\,(sat)}$ – I_C



SAFE OPERATING AREA



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