

9097250 TOSHIBA (DISCRETE/OPTO)

56C 07690 D 7-33-65

SILICON NPN TRIPLE DIFFUSED TYPE

2SC3309

SWITCHING REGULATOR AND HIGH VOLTAGE SWITCHING APPLICATIONS.

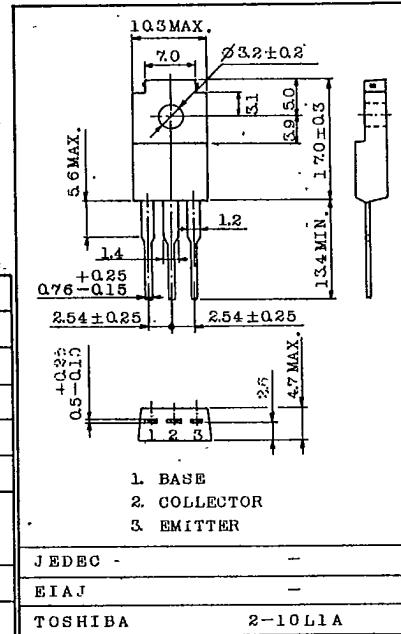
HIGH SPEED DC-DC CONVERTER APPLICATION.

FEATURES:

- Excellent Switching Times
 $t_r=1.0\mu s(\text{Max.})$, $t_f=1.0\mu s(\text{Max.})$ at $I_C=0.8A$
- High Collector Breakdown Voltage: $V_{CE0}=400V$

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

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Base Voltage		V_{CBO}	500	V
Collector-Emitter Voltage		V_{CEO}	400	V
Emitter-Base Voltage		V_{EBO}	7	V
Collector Current		I_C	2	A
Base Current		I_B	0.5	A
Collector Power Dissipation	$T_a=25^\circ C$	P_C	2.0	W
	$T_c=25^\circ C$		20	
Junction Temperature		T_j	150	$^\circ C$
Storage Temperature Range		T_{stg}	-55 ~ 150	$^\circ C$

INDUSTRIAL APPLICATIONS
Unit in mm

Weight : 2.1g

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

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current		I_{CBO}	$V_{CB}=400V, I_E=0$	-	-	100	μA
Emitter Cut-off Current		I_{EBO}	$V_{EB}=7V, I_C=0$	-	-	1	mA
Collector-Base Breakdown Voltage		$V_{(BR)CBO}$	$I_C=1mA, I_E=0$	500	-	-	V
Collector-Emitter Breakdown Voltage		$V_{(BR)CEO}$	$I_C=10mA, I_B=0$	400	-	-	V
DC Current Gain		h_{FE}	$V_{CE}=5V, I_C=0.1A$	20	-	-	
			$V_{CE}=5V, I_C=1A$	8	-	-	
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$	$I_C=1A, I_B=0.2A$	-	-	1.0	V
Base-Emitter Saturation Voltage		$V_{BE(sat)}$	$I_C=1A, I_B=0.2A$	-	-	1.5	V
Switching Time	Rise Time	t_r		-	-	1.0	μs
	Storage Time	t_{stg}		-	-	2.5	
	Fall Time	t_f		$I_{B1} \sim -I_{B2} = 0.08A$ DUTY CYCLE < 1%	-	-	

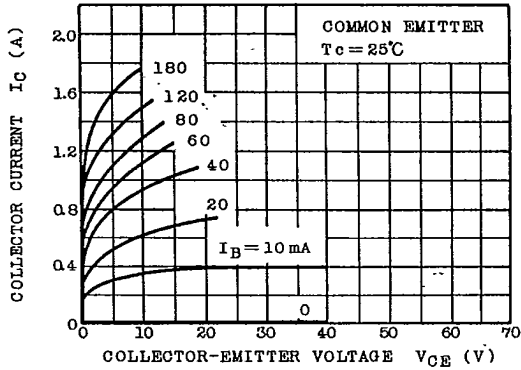
TOSHIBA CORPORATION

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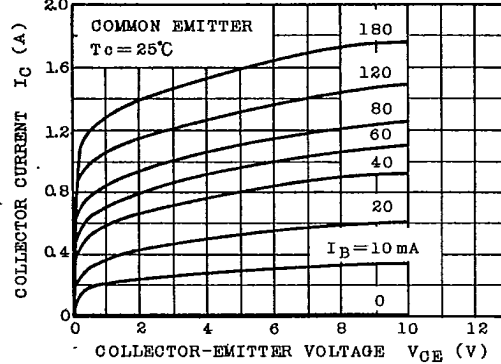
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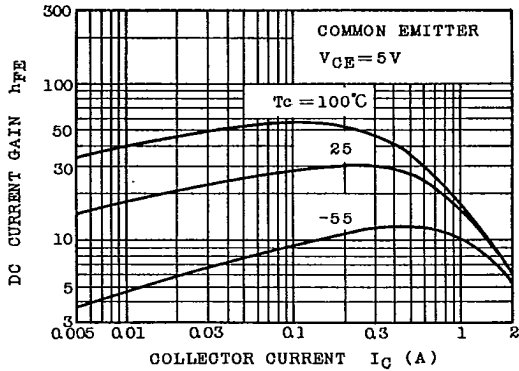
STATIC CHARACTERISTICS



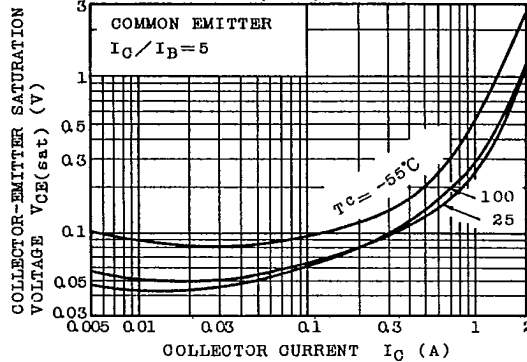
I_C - V_{CE} (LOW VOLTAGE REGION)



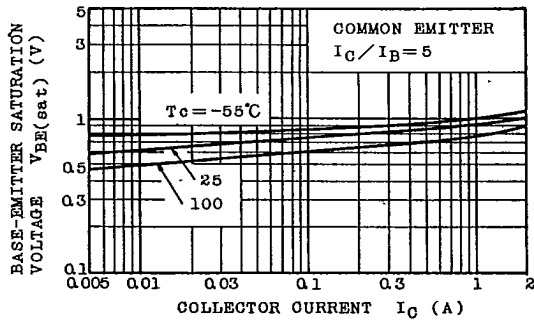
h_{FE} - I_C



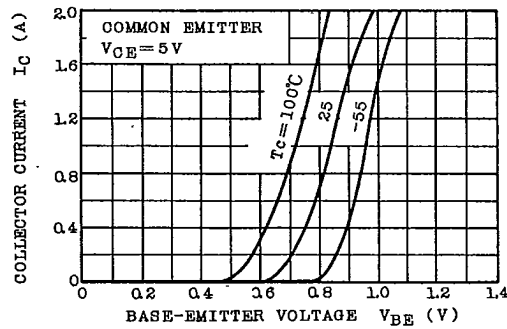
V_{CE(sat)} - I_C



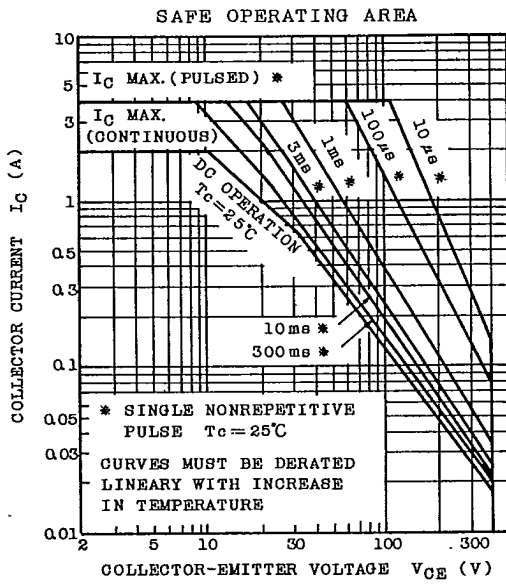
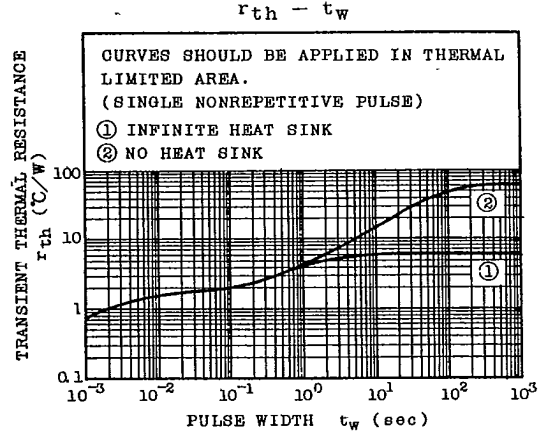
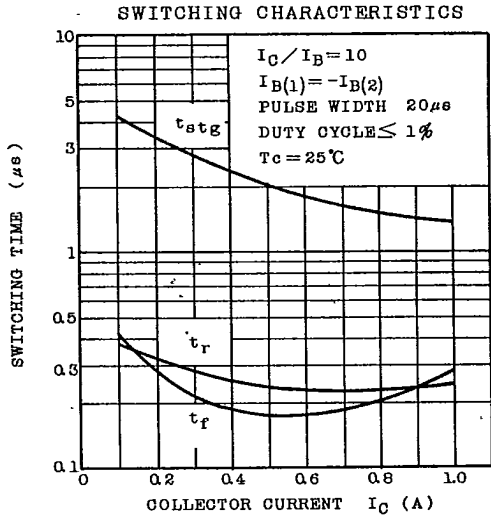
V_{BE(sat)} - I_C



I_C - V_{BE}



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