

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:

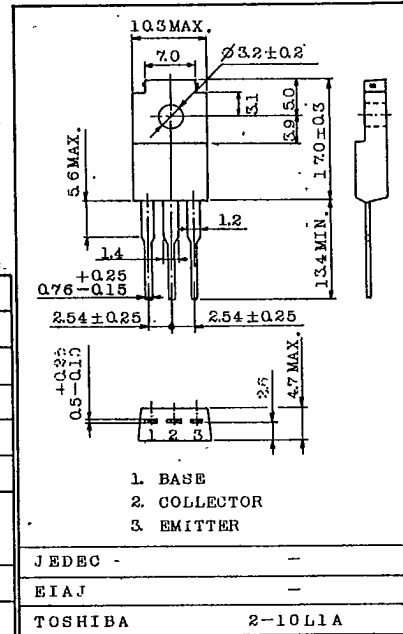
- Excellent Switching Times
 $t_r=1.0\mu s$ (Max.), $t_f=1.0\mu s$ (Max.) at $I_C=0.8A$
- High Collector Breakdown Voltage: $V_{CE0}=400V$

MAXIMUM RATINGS (Ta=25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V _{CB0}	500	V
Collector-Emitter Voltage	V _{CE0}	400	V
Emitter-Base Voltage	V _{EB0}	7	V
Collector Current	I _C	2	A
Base Current	I _B	0.5	A
Collector Power Dissipation	P _C	Ta=25°C	2.0
		Tc=25°C	20
Junction Temperature	T _j	150	°C
Storage Temperature Range	T _{stg}	-55 ~ 150	°C

INDUSTRIAL APPLICATIONS

Unit in mm



Weight : 2.1g

ELECTRICAL CHARACTERISTICS (Ta=25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	I _{CB0}	V _{CB} =400V, I _E =0	-	-	100	μA
Emitter Cut-off Current	I _{EB0}	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	-	-	1.0	

The switching time diagram shows a pulse input with a 20μs rise time. The input current is I_{B1} and the base current is I_{B2}. The output is shown with a 250V collector-emitter voltage and a 200V collector-base voltage. The duty cycle is less than 1%.

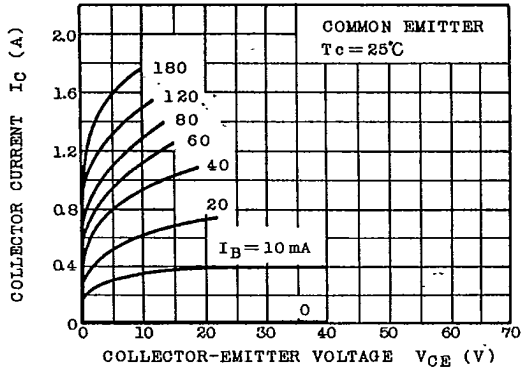
TOSHIBA CORPORATION

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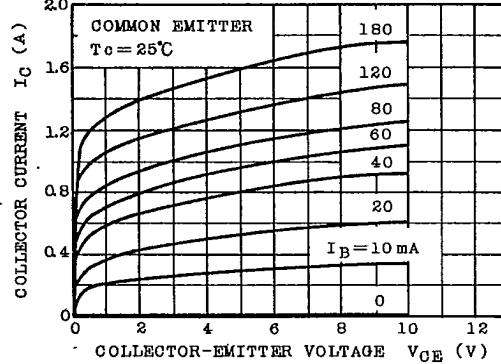
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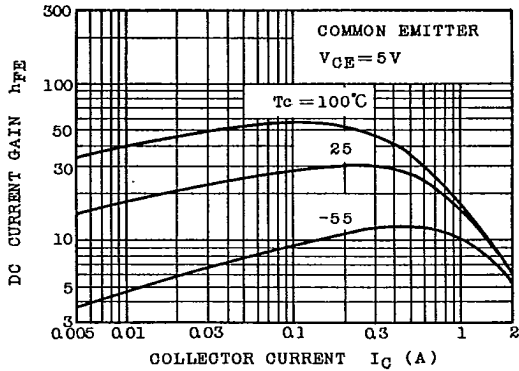
STATIC CHARACTERISTICS



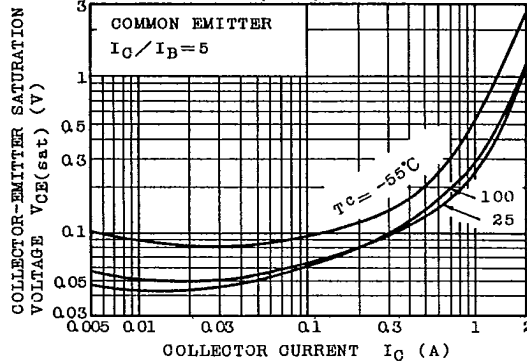
I_C - V_{CE} (LOW VOLTAGE REGION)



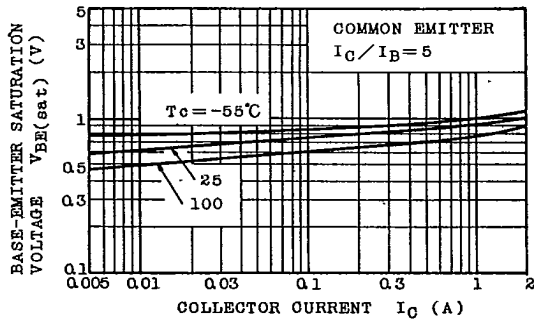
h_{FE} - I_C



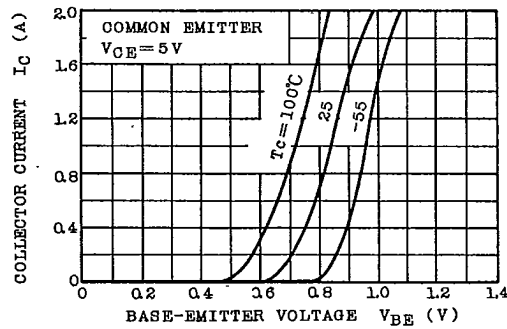
V_{CE(sat)} - I_C



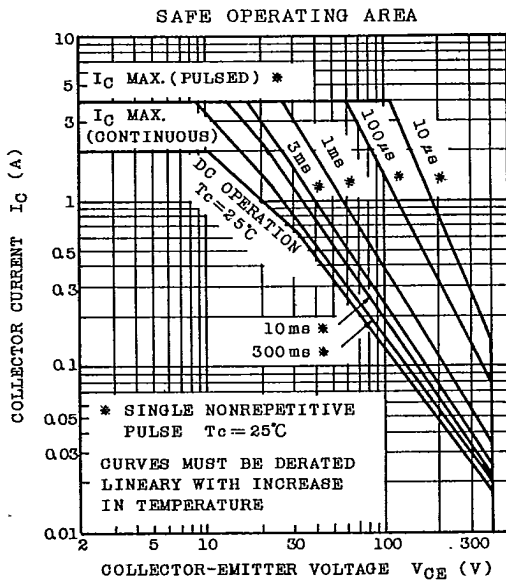
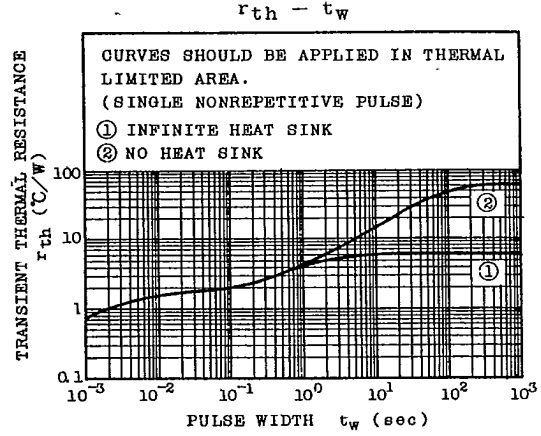
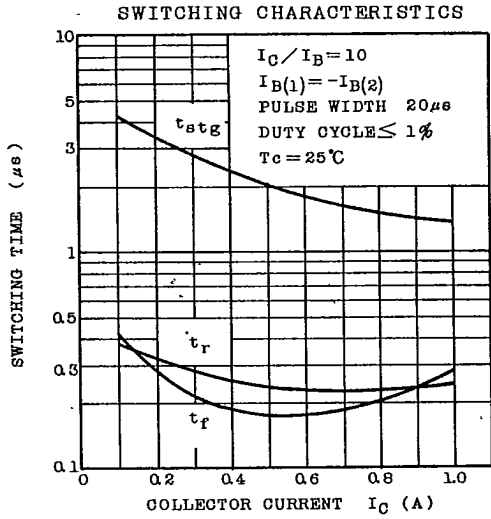
V_{BE(sat)} - I_C



I_C - V_{BE}



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