SILICON NPN TRIPLE DIFFUSED TYPE

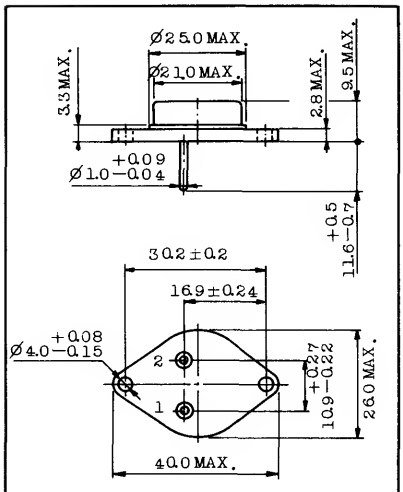
2N6546

SWITCHING REGULATOR AND HIGH VOLTAGE SWITCHING APPLICATIONS.
HIGH SPEED DC-DC CONVERTER, RELAY AND SOLENOID DRIVER APPLICATIONS.

FEATURES:

. High Sustaining Voltage : $V_{CEO(SUS)}$=300V (Min.)
. High Collector Current : I_C=15A (Max.)
. Excellent Switching Times

Unit in mm



1. BASE
2. EMITTER
COLLECTOR (CASE)

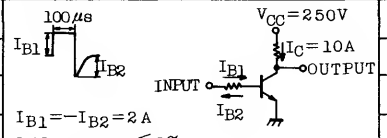
JEDEC	TO-204MA/TO-3
EIAJ	TC-3, TB-3
TOSHIBA	2-21E1A

Weight : 15.8g

MAXIMUM RATINGS (Ta=25°C)

	CHARACTERISTIC		SYMBOL	RATING	UNIT
	Collector-Base Voltage		V_{CBO}	650	V
*	Collector-Emitter Voltage		V_{CEV}	650	V
*	Collector-Emitter Sustaining Voltage		$V_{CEX(SUS)}$	350	V
*	Collector-Emitter Sustaining Voltage		$V_{CEO(SUS)}$	300	V
*	Emitter-Base Voltage		V_{EBO}	9	V
*	Collector Current	DC	I_C	15	A
		Peak	I_{CM}	30	A
*	Base Current		I_B	10	A
*	Emitter Current		I_E	- 25	A
*	Collector Power Dissipation	Tc=25°C	P_C	175	W
		Tc=100°C		100	W
	Derate Linearly above 25°C			1	W/°C
*	Junction Temperature		T_j	200	°C
*	Storage Temperature Range		T_{stg}	-65 ~ 200	°C
*	Thermal Resistance		θ_{jc}	1	°C/W
*	Lead Temperature (3.17mm from case for 5s)		T_L	275	°C

ELECTRICAL CHARACTERISTICS ($Ta=25^{o}C$)

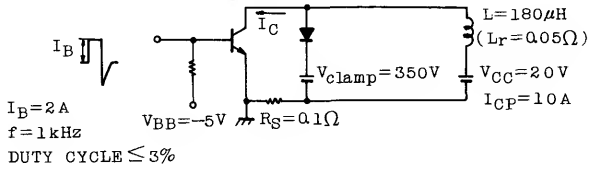
	CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
*	Collector Cut-off Current		I_{CEV}	V_{CE}=650V, V_{BE}=-1.5V	-	-	1	mA
*	Collector Cut-off Current		I_{CEV}	V_{CE}=650V, V_{BE}=-1.5V; $Tc=100^{o}C$	-	-	4	mA
*	Collector Cut-off Current		I_{CER}	V_{CE}=650V, R_{BE}=50Ω, $Tc=100^{o}C$	-	-	5	mA
*	Emitter Cut-off Current		I_{EBO}	V_{EB}=9V, I_C=0	-	-	1	mA
*	Collector-Emitter Sustaining Voltage (Note:1)		$V_{CEX(SUS)}$ **	I_C=8A, V_{clamp}=350V, $Tc=100^{o}C$	350	-	-	V
				I_C=15A, V_{clamp}=200V, $Tc=100^{o}C$	200	-	-	V
*	Collector-Emitter Sustaining Voltage		$V_{CEO(SUS)}$ **	I_C=0.1A, I_B=0	300	-	-	V
*	DC Current Gain		h_{FE}	V_{CE}=2V, I_C=5A	12	-	60	
				V_{CE}=2V, I_C=10A	6	-	30	
*	Collector-Emitter Saturation Voltage		$V_{CE(sat)}$	I_C=10A, I_B=2A	-	-	1.5	V
				I_C=15A, I_B=3A	-	-	5	V
				I_C=10A, I_B=2A, $Tc=100^{o}C$	-	-	2.5	V
*	Base-Emitter Saturation Voltage		$V_{BE(sat)}$	I_C=10A, I_B=2A	-	-	1.6	V
				I_C=10A, I_B=2A, $Tc=100^{o}C$	-	-	1.6	V
*	Transition Frequency		f_T	V_{CE}=10V, I_C=0.5A, f=1MHz	6	-	28	MHz
*	Collector Output Capacitance		C_{ob}	V_{CB}=10V, I_E=0, f=1MHz	125	-	500	pF
*	Switching Time	Delay Time	t_d		-	-	0.05	μs
		Rise Time	t_r		-	-	1.0	μs
		Storage Time	t_{stg}		-	-	4.0	μs
		Fall Time	t_f		-	-	0.7	μs
		Storage Time	t_{stg}	See Fig.1 $Tc=100^{o}C$	-	-	5.0	μs
		Fall Time	t_f		-	-	1.5	μs
*	Second Breakdown Collector Current (Base forward biased)		$I_{s/b}$	V_{CE}=100V, t=1s (non repetitive)	0.2	-	-	A

* In Accordance with JEDEC Registration Data.

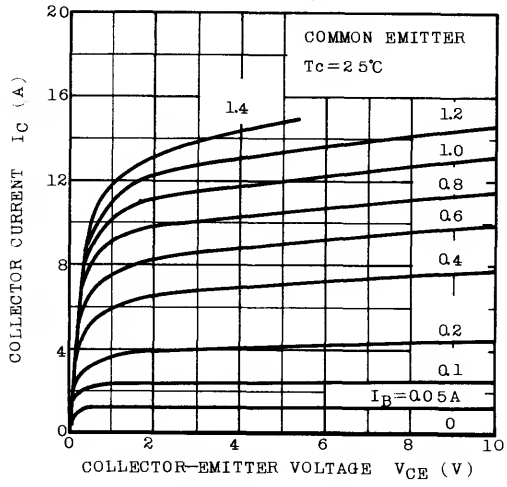
** The sustaining voltages $V_{CEX(SUS)}$ and $V_{CEO(SUS)}$ MUST NOT be measured on a curve tracer.

Note 1 : Test condition V_{CC}=20V, L=180μH, (L_r=0.05Ω)

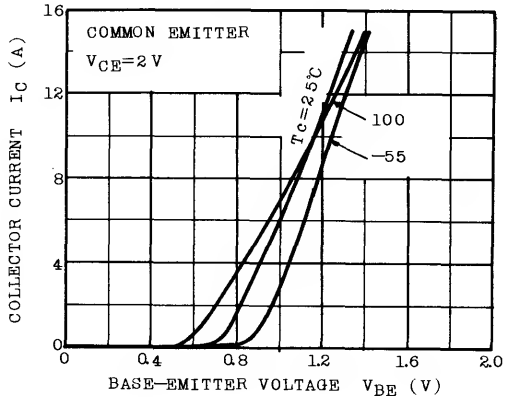
Fig.1 : Inductive Load Switching Time Test Circuit.



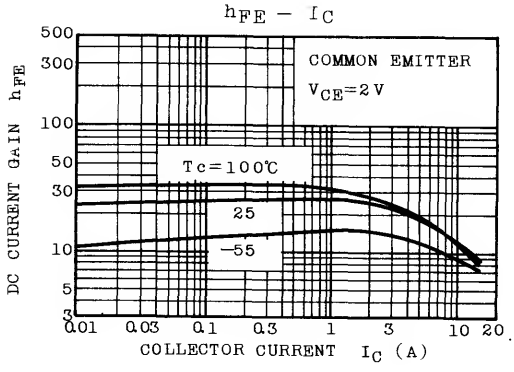
$I_C - V_{CE}$



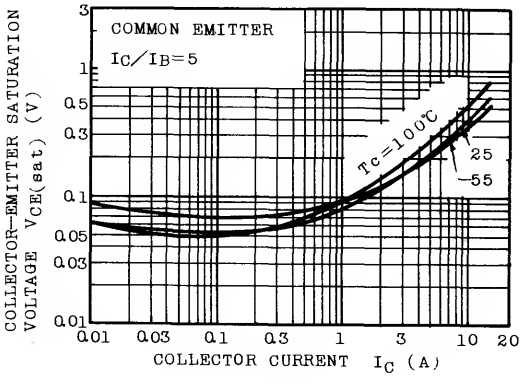
$I_C - V_{BE}$



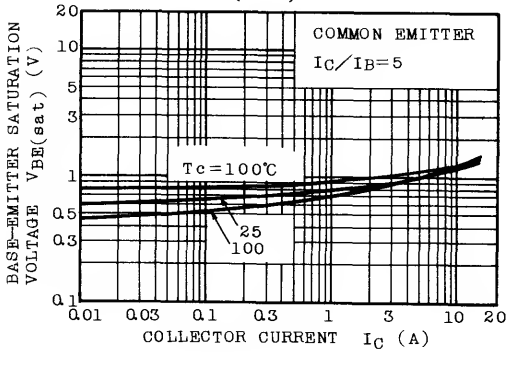
$h_{FE} - I_C$



$V_{CE(sat)} - I_C$



$V_{BE(sat)} - I_C$



$P_C - T_C$