TOSHIBA TRANSISTOR SILICON NPN TRIPLE DIFFUSED TYPE

2SD1313

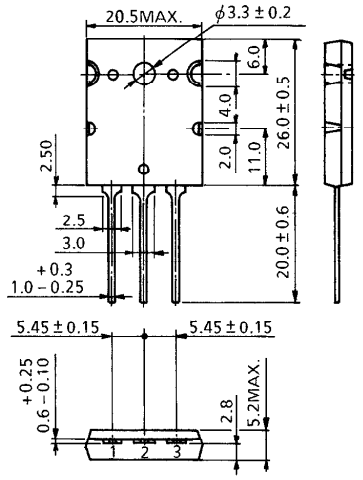
HIGH POWER AMPLIFIER APPLICATIONS.

HIGH POWER SWITCHING APPLICATIONS.

INDUSTRIAL APPLICATIONS

Unit in mm

- High Power Dissipation : P_C = 200W (Tc = 25°C)
- High Collector Current : I_C = 25A (DC)
- High Speed Switching : t_f = 0.5μs (Typ.) (I_C = 15A)
- Low Saturation Voltage : $V_{CE\ (sat)}$ = 1.0V (Max.) (I_C = 15A)



1. BASE
2. COLLECTOR (HEAT SINK)
3. EMITTER

JEDEC	—
EIAJ	—
TOSHIBA	2-21F1A

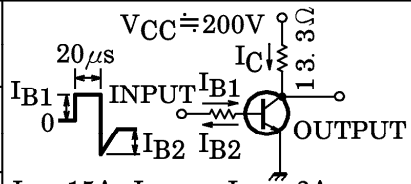
Weight : 9.75g (Typ.)

MAXIMUM RATINGS (Ta = 25°C)

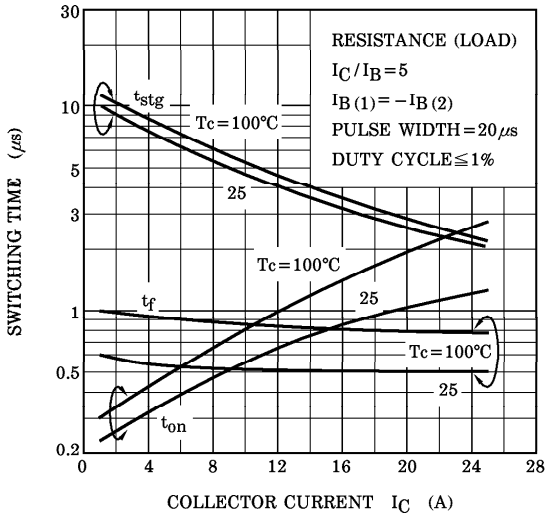
CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Base Voltage		V_{CBO}	800	V
Collector-Emitter Voltage		V_{CEO}	350	V
Emitter-Base Voltage		V_{EBO}	7	V
Collector Current	DC	I_C	25	A
	Pulse	I_{CP}	35	
Base Current	DC	I_B	10	A
	Pulse	I_{BP}	15	
Collector Power Dissipation (Tc = 25°C)		P_C	200	W
Junction Temperature		T_j	150	°C
Storage Temperature Range		T_{stg}	−55~150	°C

961001EAA2

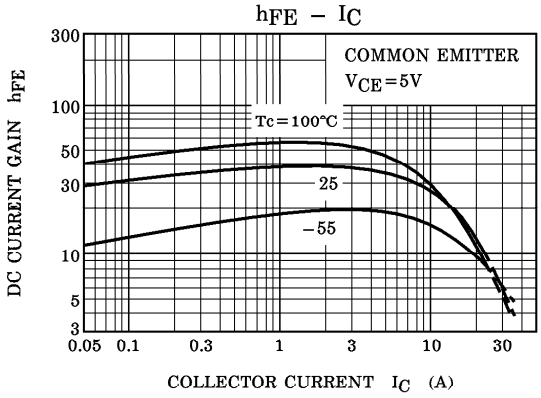
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current		I_{CBO}	V_{CB} = 800V, I_E = 0	—	—	1	mA
Emitter Cut-off Current		I_{EBO}	V_{EB} = 7V, I_C = 0	—	—	1	mA
Collector-Emitter Breakdown Voltage		$V_{(BR)\,CEO}$	I_C = 10mA, I_B = 0	350	—	—	V
DC Current Gain		$h_{FE\,(1)}$	V_{CE} = 5V, I_C = 1A	15	—	—	
		$h_{FE\,(2)}$	V_{CE} = 5V, I_C = 25A	6	—	—	
Collector-Emitter Saturation Voltage		$V_{CE\,(sat)}$	I_C = 15A, I_B = 3A	—	—	1.0	V
Base-Emitter Saturation Voltage		$V_{BE\,(sat)}$	I_C = 15A, I_B = 3A	—	—	1.7	V
Collector Output Capacitance		C_{ob}	V_{CB} = 50V, I_E = 0, f = 1MHz	—	170	—	pF
Transition Frequency		f_T	V_{CE} = 10V, I_C = 1A	—	6	—	MHz
Switching Time	Turn-on Time	t_{on}		—	0.8	—	μs
	Storage Time	t_{stg}		—	3.0	—	
	Fall Time	t_f	I_C = 15A, $I_{B1} = -I_{B2}$ = 3A, DUTY CYCLE < 1%	—	0.5	—	

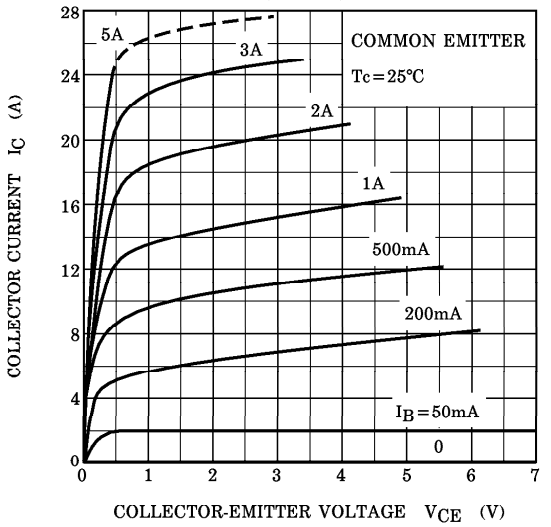
SWITCHING APPLICATIONS



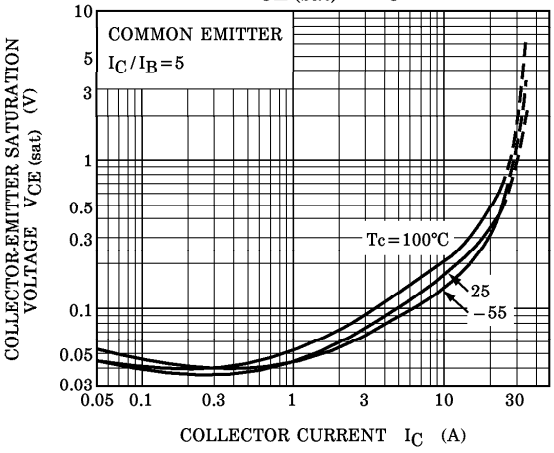
h_{FE} – I_C



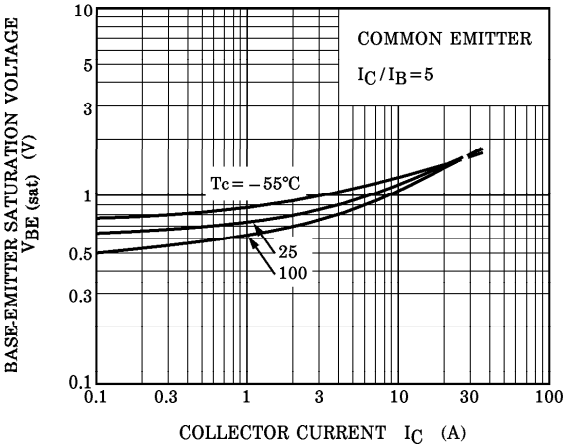
I_C – V_{CE}



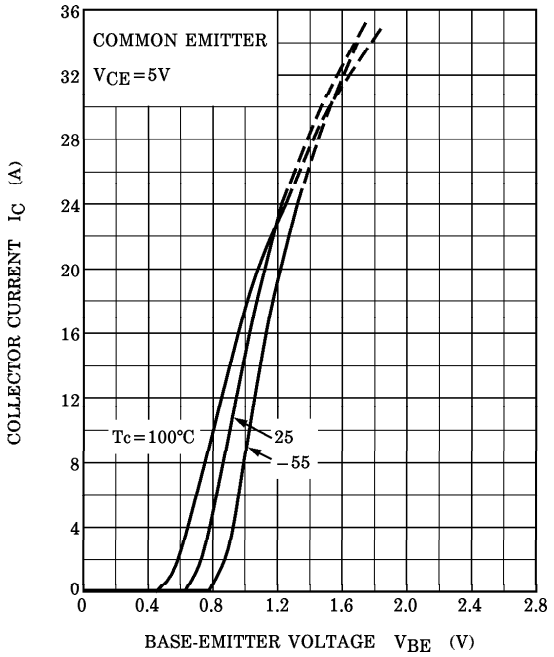
$V_{CE\,(sat)}$ – I_C



$V_{BE\,(sat)}$ – I_C



I_C – V_{BE}



SAFE OPERATING AREA