TOSHIBA TRANSISTOR SILICON NPN TRIPLE DIFFUSED TYPE (DARLINGTON)

2SD1314

HIGH POWER SWITCHING APPLICATIONS.

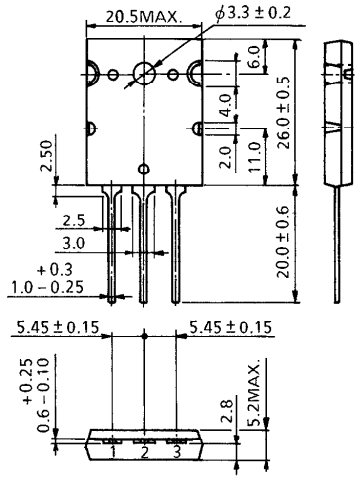
MOTOR CONTROL APPLICATIONS.

- High DC Current Gain : $h_{FE}=100$ (Min.)
- Low Saturation Voltage : $V_{CE\,(sat)}=2V$ (Max.)
- High Speed : $t_f=3\mu s$ (Max.)

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Base Voltage		V_{CBO}	600	V
Collector-Emitter Voltage		V_{CEO}	450	V
Emitter-Base Voltage		V_{EBO}	6	V
Collector Current	DC	I_C	15	A
	Pulse	I_{CP}	30	
Base Current		I_B	1.0	A
Collector Power Dissipation (Tc = 25°C)		P_C	150	W
Junction Temperature		T_j	150	°C
Storage Temperature Range		T_{stg}	−55~150	°C

Unit in mm

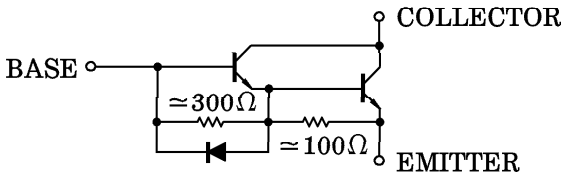


1. BASE
2. COLLECTOR (HEAT SINK)
3. EMITTER

JEDEC	—
EIAJ	—
TOSHIBA	2-21F1A

Weight : 9.75g (Typ.)

EQUIVALENT CIRCUIT



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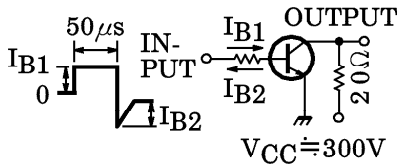
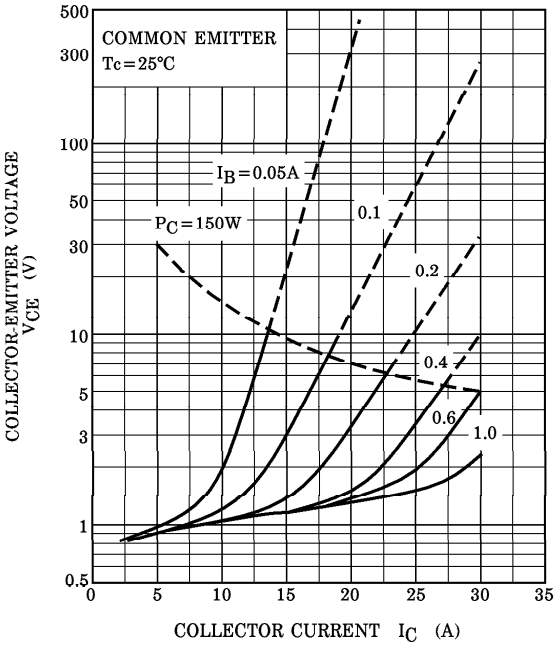
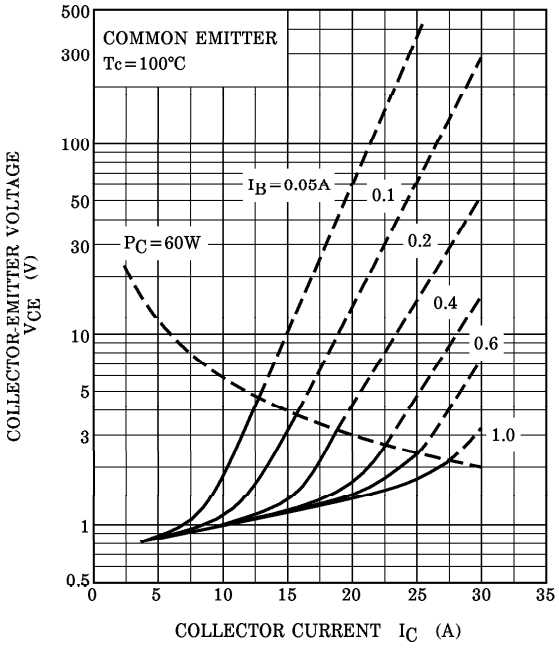
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current		I_{CBO}	V_{CB} = 600V, I_E = 0	—	—	1.0	mA
Emitter Cut-off Current		I_{EBO}	V_{EB} = 6V, I_C = 0	—	—	200	mA
Collector-Emitter Sustaining Voltage		$V_{CEO\ (SUS)}$	I_C = 0.5A, L = 40mH	450	—	—	V
DC Current Gain		h_{FE}	V_{CE} = 5V, I_C = 15A	100	—	—	
Collector-Emitter Saturation Voltage		$V_{CE\ (sat)}$	I_C = 15A, I_B = 0.4A	—	—	2.0	V
Base-Emitter Saturation Voltage		$V_{BE\ (sat)}$		—	—	2.5	V
Collector Output Capacitance		C_{ob}	V_{CB} = 50V, I_E = 0, f = 1MHz	—	150	—	pF
Switching Time	Turn-on Time	t_{on}		—	—	1.0	μs
	Storage Time	t_{stg}		—	—	12	
	Fall Time	t_f	$I_{B1} = -I_{B2}$ = 0.4A, DUTY CYCLE = 0.5%	—	—	3.0	

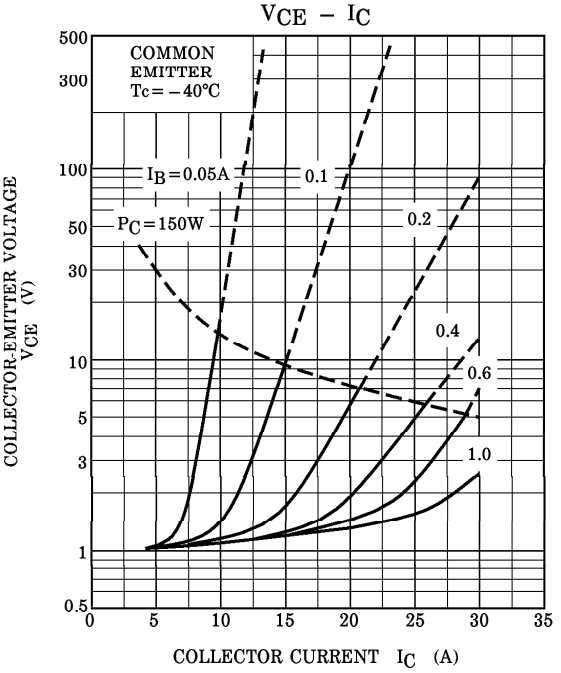
V_{CE} – I_C



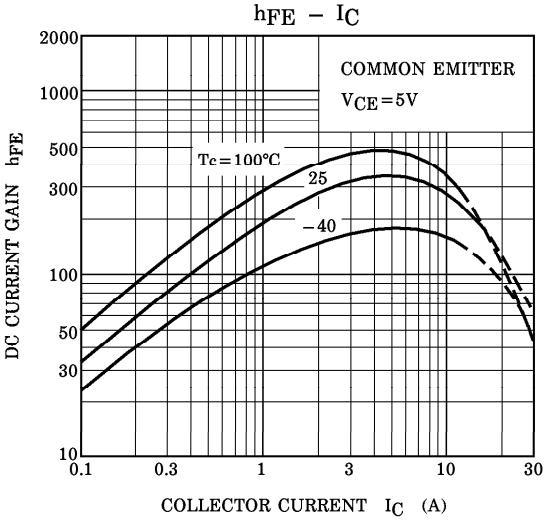
V_{CE} – I_C



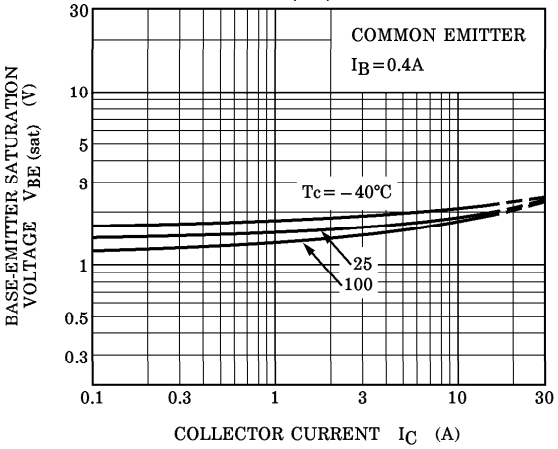
V_{CE} – I_C



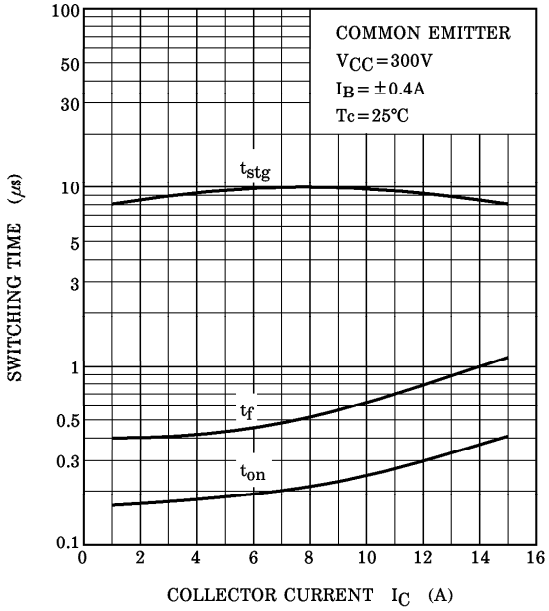
h_{FE} – I_C



$V_{BE\,(sat)}$ – I_C



SWITCHING TIME – I_C



SAFE OPERATING AREA