TOSHIBA TRANSISTOR SILICON NPN TRIPLE DIFFUSED TYPE (DARLINGTON)

2SD1525

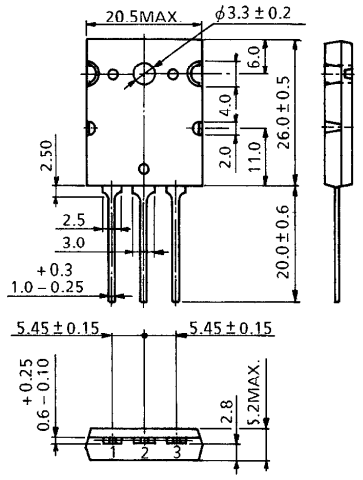
HIGH CURRENT SWITCHING APPLICATIONS

- High Collector Current : $I_C = 30A$
- High DC Current Gain : $h_{FE\,(1)} = 1000$ (Min.)
- Monolithic Construction with Built-In Base-Emitter Shunt Resistor.

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CBO}	100	V
Collector-Emitter Voltage	V_{CEO}	100	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current	I_C	30	A
Base Current	I_B	5	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

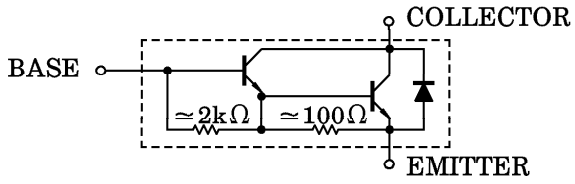


1. BASE
2. COLLECTOR (HEAT SINK)
3. EMITTER

JEDEC	—
EIAJ	—
TOSHIBA	2-21F1A

Weight : 9.8g (Typ.)

EQUIVALENT CIRCUIT



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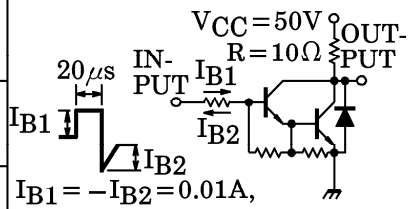
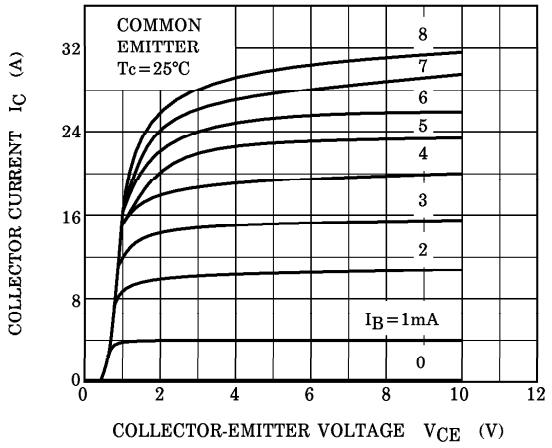
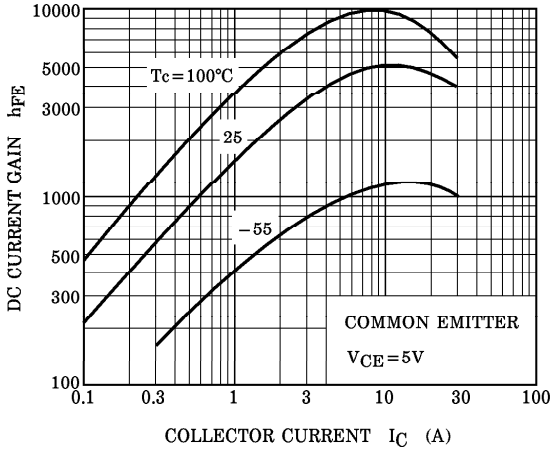
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current		I_{CBO}	V_{CB} = 100V, I_E = 0	—	—	100	μA
Emitter Cut-off Current		I_{EBO}	V_{EB} = 5V, I_C = 0	—	—	10	mA
Collector-Emitter Breakdown Voltage		$V_{(BR)\ CEO}$	I_C = 50mA, I_B = 0	100	—	—	V
DC Current Gain		$h_{FE\ (1)}$	V_{CE} = 5V, I_C = 20A	1000	—	—	
		$h_{FE\ (2)}$	V_{CE} = 5V, I_C = 30A	200	—	—	
Collector-Emitter Saturation Voltage		$V_{CE\ (sat)}$	I_C = 20A, I_B = 0.2A	—	—	1.5	V
Base-Emitter Saturation Voltage		$V_{BE\ (sat)}$		—	—	2.5	V
Emitter-Collector Forward Voltage		V_{ECF}	I_E = 10A, I_B = 0	—	—	3	V
Transition Frequency		f_T	V_{CE} = 5V, I_C = 1A	—	10	—	MHz
Collector Output Capacitance		C_{ob}	V_{CB} = 10V, I_E = 0, f = 1MHz	—	500	—	pF
Switching Time	Turn-on Time	t_{on}	 $I_{B1} = -I_{B2}$ = 0.01A, DUTY CYCLE ≦ 1%	—	1.5	—	μs
	Storage Time	t_{stg}		—	10	—	
	Fall Time	t_f		—	1.5	—	

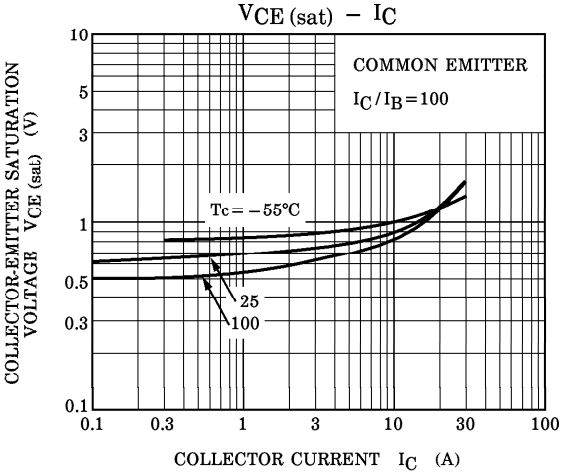
I_C – V_{CE}



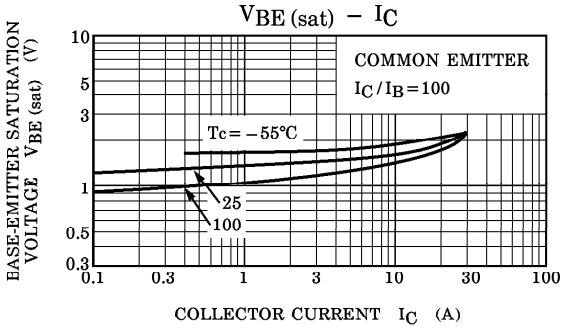
h_{FE} – I_C



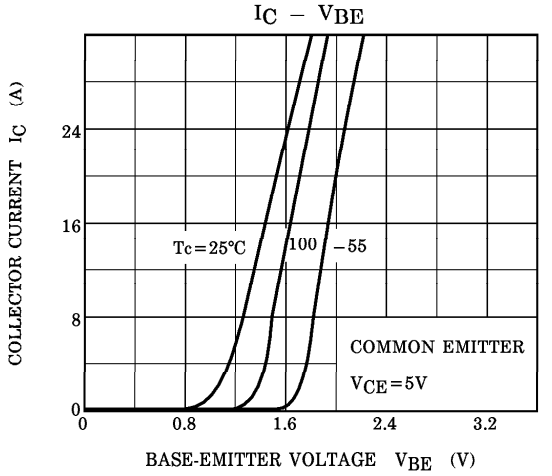
$V_{CE\,(sat)}$ – I_C



$V_{BE\,(sat)}$ – I_C



I_C – V_{BE}



SAFE OPERATING AREA