

TOSHIBA TRANSISTOR SILICON NPN TRIPLE DIFFUSED TYPE

2SD2204

HIGH POWER SWITCHING APPLICATIONS

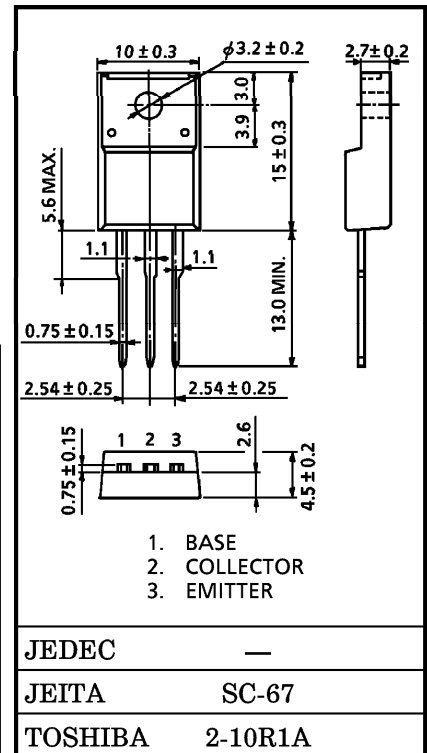
HAMMER DRIVE, PULSE MOTOR DRIVE APPLICATIONS

- High DC Current Gain : $h_{FE} = 2000$ (Min.)
($V_{CE} = 3V, I_C = 1.5A$)
- Low Saturation Voltage : $V_{CE(sat)} = 1.5V$ (Max.) ($I_C = 1.5A$)

MAXIMUM RATINGS ($T_c = 25^\circ C$)

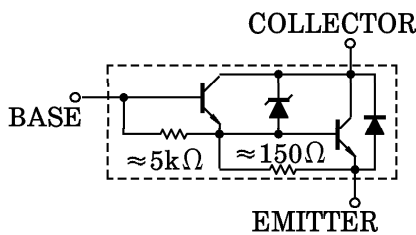
CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Base Voltage		V_{CB0}	65 ± 10	V
Collector-Emitter Voltage		V_{CEO}	65 ± 10	V
Emitter-Base Voltage		V_{EBO}	7	V
Collector Current	DC	I_C	4	A
	Pulse	I_{CP}	6	
Base Current		I_B	0.5	A
Collector Power Dissipation	$T_a = 25^\circ C$	P_C	2.0	W
	$T_c = 25^\circ C$		25	
Junction Temperature		T_j	150	$^\circ C$
Storage Temperature Range		T_{stg}	$-55 \sim 150$	$^\circ C$

Unit in mm



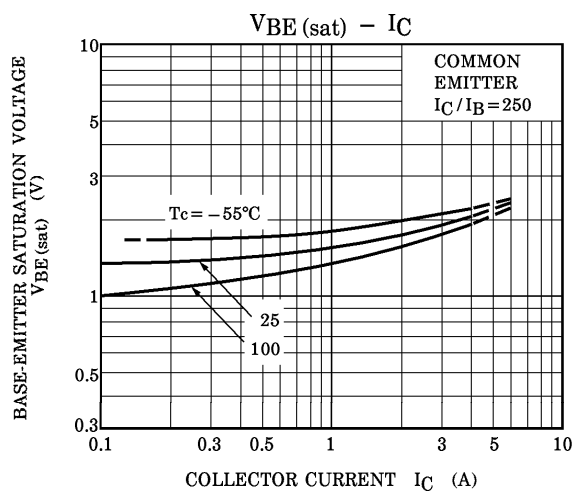
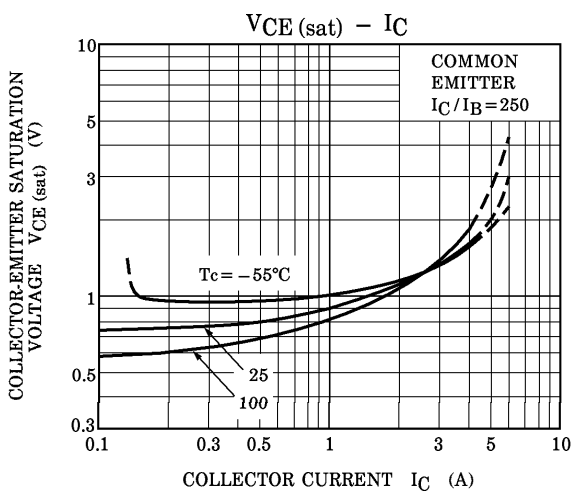
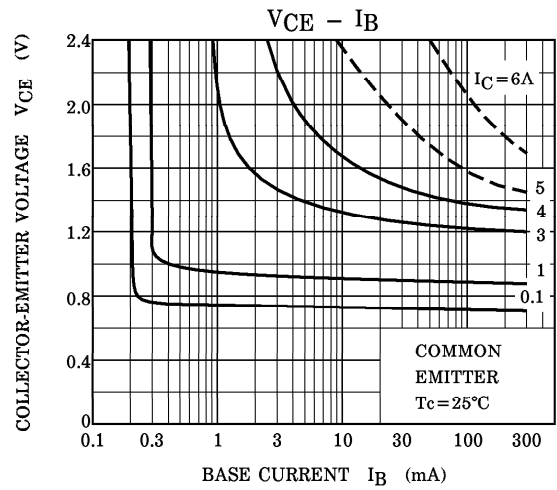
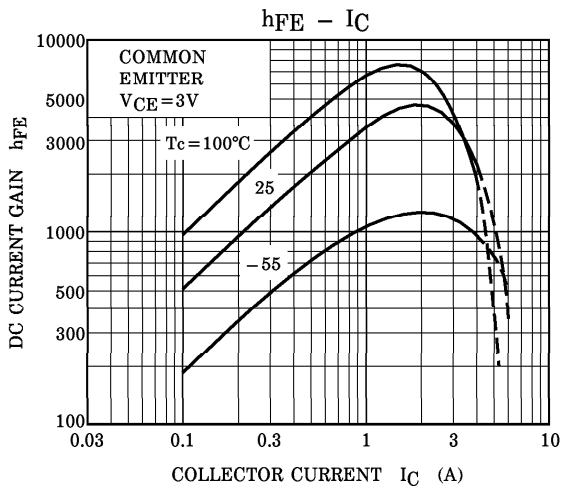
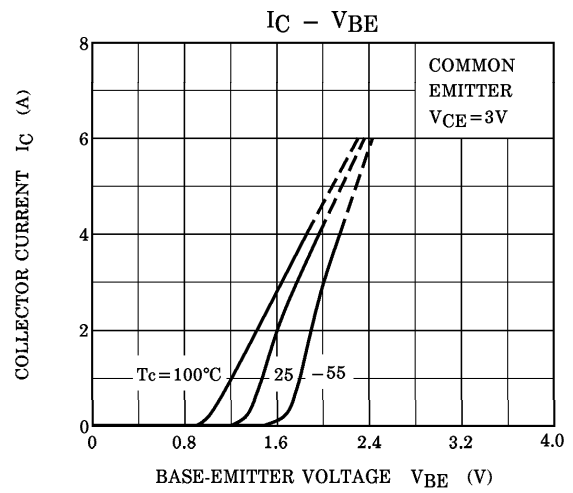
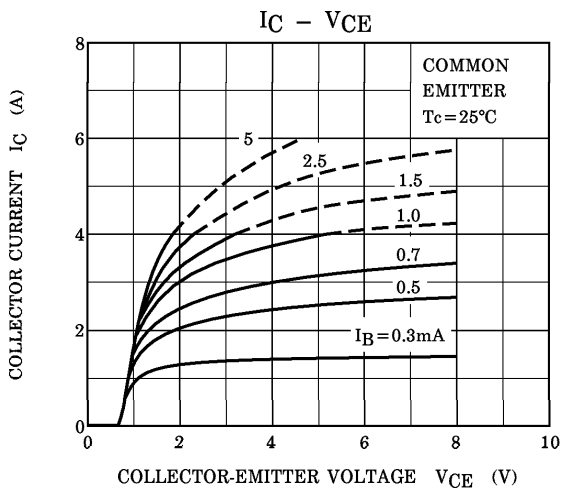
Weight : 1.7 g (Typ.)

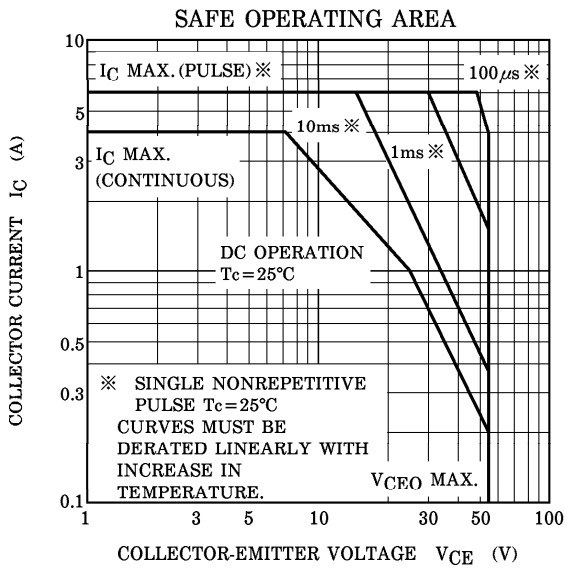
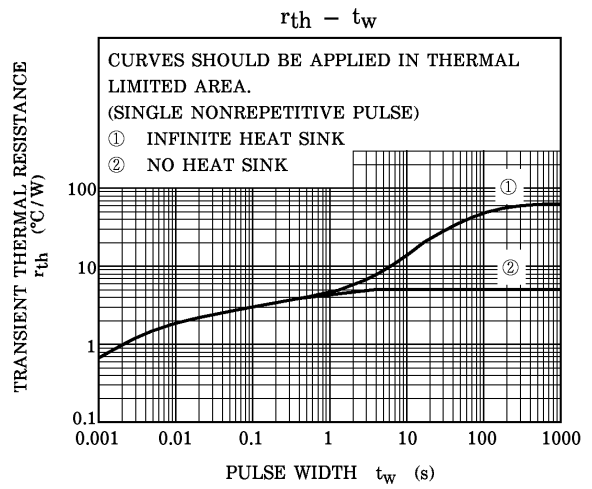
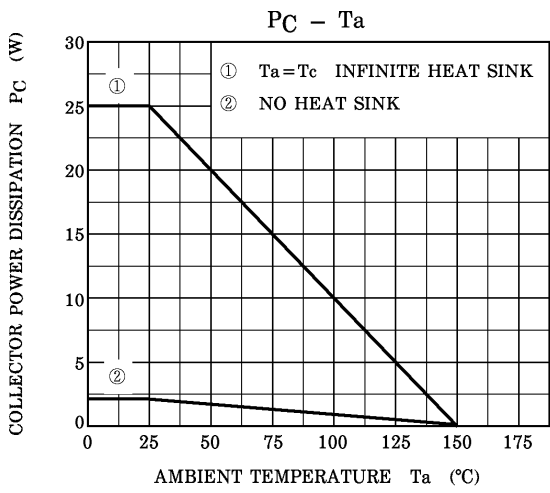
EQUIVALENT CIRCUIT



ELECTRICAL CHARACTERISTICS (Tc = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current		I_{CBO}	$V_{CB} = 45V, I_E = 0$	—	—	100	μA
Emitter Cut-off Current		I_{EBO}	$V_{EB} = 6V, I_C = 0$	—	—	2.5	mA
Collector-Emitter Breakdown Voltage		$V_{(BR)CEO}$	$I_C = 10mA, I_B = 0$	55	65	75	V
DC Current Gain		$h_{FE} (1)$	$V_{CE} = 3V, I_C = 1.5A$	2000	—	15000	
		$h_{FE} (2)$	$V_{CE} = 3V, I_C = 3A$	1000	—	—	
Collector-Emitter Saturation Voltage		$V_{CE(sat)} (1)$	$I_C = 1.5A, I_B = 3mA$	—	—	1.5	V
		$V_{CE(sat)} (2)$	$I_C = 3A, I_B = 12mA$	—	—	2.0	
Base-Emitter Saturation Voltage		$V_{BE(sat)}$	$I_C = 1.5A, I_B = 3mA$	—	—	2.0	V
Switching Time	Turn-on Time	t_{on}	<p> $I_{B1} = -I_{B2} = 3mA,$ $DUTY\ CYCLE \leq 1\%$ $V_{CC} = 30V$ </p>	—	1.0	—	μs
	Storage Time	t_{stg}		—	5.0	—	
	Fall Time	t_f		—	2.0	—	





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