

TOSHIBA TRANSISTOR SILICON NPN TRIPLE DIFFUSED TYPE

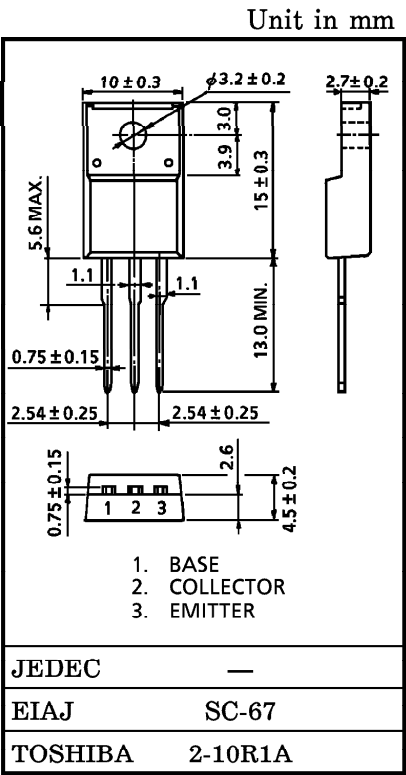
2SD2204

HIGH POWER SWITCHING APPLICATIONS
HAMMER DRIVE, PULSE MOTOR DRIVE APPLICATIONS

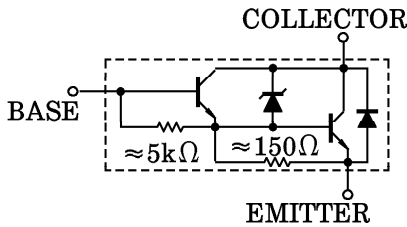
- High DC Current Gain : $h_{FE}=2000$ (Min.)
($V_{CE}=3V$, $I_C=1.5A$)
- Low Saturation Voltage : $V_{CE(sat)}=1.5V$ (Max.) ($I_C=1.5A$)

MAXIMUM RATINGS ($T_a = 25^{\circ}C$)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Base Voltage		V_{CBO}	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}	$-55 \sim 150$	$^{\circ}C$



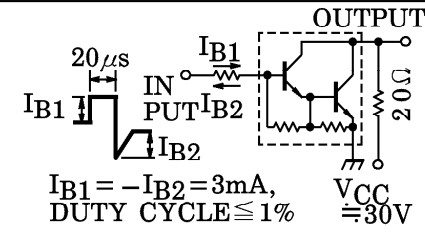
EQUIVALENT CIRCUIT



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ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current		ICBO	V _{CB} = 45V, I _E = 0	—	—	100	μA
Emitter Cut-off Current		IEBO	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}	 I _{B1} = -I _{B2} = 3mA, DUTY CYCLE ≤ 1% V _{CC} = 30V	—	1.0	—	μs
	Storage Time	t _{stg}		—	5.0	—	
	Fall Time	t _f		—	2.0	—	

