

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL TYPE (PCT PROCESS) (DARLINGTON)

2SD1140

MICRO MOTOR DRIVE, HAMMER DRIVE APPLICATIONS.

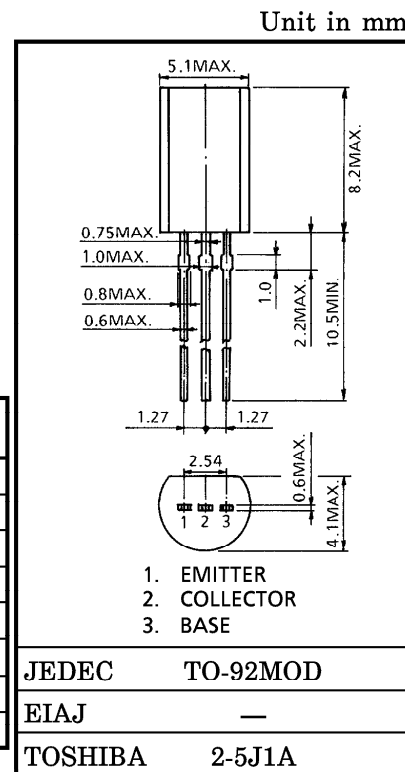
SWITCHING APPLICATIONS.

POWER AMPLIFIER APPLICATIONS.

- High DC Current Gain
: $h_{FE} = 4000$ (Min.)
- Low Saturation Voltage
: $V_{CE(sat)} = 1.5V$ (Max.)

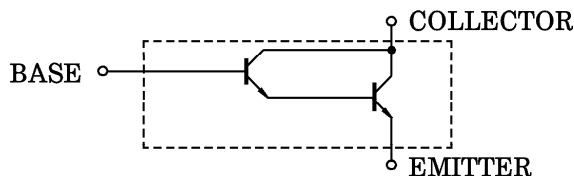
MAXIMUM RATINGS ($T_a = 25^\circ C$)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CBO}	30	V
Collector-Emitter Voltage	V_{CEO}	30	V
Emitter-Base Voltage	V_{EBO}	10	V
Collector Current	I_C	1.5	A
Base Current	I_B	50	mA
Collector Power Dissipation	P_C	900	mW
Junction Temperature	T_j	150	$^\circ C$
Storage Temperature Range	T_{stg}	-55~150	$^\circ C$



Weight : 0.36g (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}	$V_{CB} = 30V, I_E = 0$	—	—	10	μA
Emitter Cut-off Current		I_{EBO}	$V_{EB} = 10V, I_C = 0$	—	—	10	μA
Collector-Emitter Breakdown Voltage		$V_{(BR) CEO}$	$I_C = 10mA, I_B = 0$	30	—	—	V
DC Current Gain		h_{FE}	$V_{CE} = 2V, I_C = 150mA$	4000	—	—	
Collector-Emitter Saturation Voltage		$V_{CE (sat)}$	$I_C = 1A, I_B = 1mA$	—	—	1.5	V
Base-Emitter Saturation Voltage		$V_{BE (sat)}$	$I_C = 1A, I_B = 1mA$	—	—	2.2	V
Switching Time	Turn-on Time	t_{on}	<p> $I_B(1) = -I_B(2) = 1mA,$ $DUTY\ CYCLE \leq 1\%$ $V_{CC} = 15V$ </p>	—	0.2	—	μs
	Storage Time	t_{stg}		—	0.6	—	
	Fall Time	t_f		—	—	0.3	

