

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL TYPE (DARLINGTON)

2SD1658

MICRO MOTOR DRIVE, HAMMER DRIVE APPLICATIONS

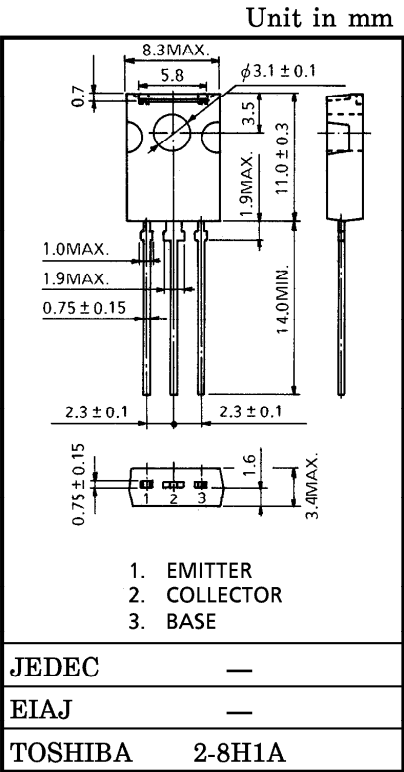
SWITCHING APPLICATIONS

POWER AMPLIFIER APPLICATIONS

- High DC Current Gain : $h_{FE}=2000$ (Min.)
- Low Saturation Voltage
: $V_{CE(sat)}=1.5V$ (Max.)
- Zener Diode Included Between Collector and Base.

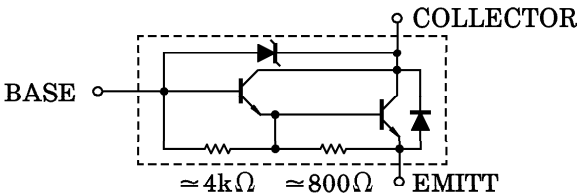
MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Base Voltage		V _{CBO}	60 ± 10	V
Collector-Emitter Voltage		V _{CEO}	60 ± 10	V
Emitter-Base Voltage		V _{EBO}	8	V
Collector Current		I _C	2	A
Base Current		I _B	0.5	A
Collector Power Dissipation	Ta = 25°C	P _C	1.5	W
	Tc = 25°C		10	
Junction Temperature		T _j	150	°C
Storage Temperature Range		T _{stg}	−55~150	°C



Weight : 0.82g (Typ.)

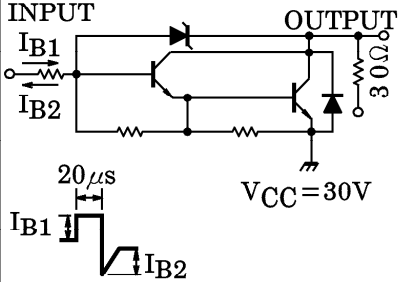
EQUIVALENT CIRCUIT



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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	—	—	10	μA
Emitter Cut-off Current		IEBO	V _{EB} = 8V, I _C = 0	—	—	4	mA
Collector-Emitter Breakdown Voltage		V _(BR) CEO	I _C = 10mA, I _B = 0	50	60	70	V
DC Current Gain		h _{FE}	V _{CE} = 2V, I _C = 1A	2000	—	—	
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	—	—	2.0	V
Transition Frequency		f _T	V _{CE} = 2V, I _C = 0.5A	—	100	—	MHz
Collector Output Capacitance		C _{ob}	V _{CB} = 10V, I _E = 0, f = 1MHz	—	20	—	pF
Switching Time	Turn-on Time	t _{on}	INPUT OUTPUT  V_{CC} = 30V 20 μs I_{B1} I_{B2} I_{B1} = -I_{B2} = 1mA, DUTY CYCLE ≤ 1%	—	0.4	—	μs
	Storage Time	t _{stg}		—	4.0	—	
	Fall Time	t _f		—	0.6	—	

