

TOSHIBA POWER TRANSISTOR MODULE SILICON PNP TRIPLE DIFFUSED TYPE (DARLINGTON POWER TRANSISTOR 4 IN 1)

MP4508

HIGH POWER SWITCHING APPLICATIONS.

HAMMER DRIVE, PULSE MOTOR DRIVE AND INDUCTIVE

LOAD SWITCHING.

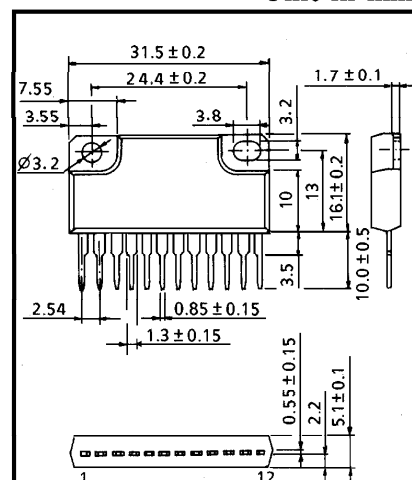
INDUSTRIAL APPLICATIONS

Unit in mm

- Package with Heat Sink Isolated to Lead (SIP 12 Pin)
- High Collector Power Dissipation (4 Devices Operation)
: $P_T = 5W$ ($T_a = 25^\circ C$)
- High Collector Current : I_C (DC) = $-5A$ (Max.)
- High DC Current Gain : $h_{FE} = 1000$ (Min.)
($V_{CE} = -3V$, $I_C = -3A$)

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

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	DC	I_C	-5	A
	Pulse	I_{CP}	-8	
Continuous Base Current		I_B	-0.1	A
Collector Power Dissipation (1 Device Operation)		P_C	3.0	W
Collector Power Dissipation (4 Devices Operation)	$T_a = 25^\circ C$	P_T	5.0	W
	$T_c = 25^\circ C$		25	
Isolation Voltage		V_{Isol}	1000	V
Junction Temperature		T_j	150	$^\circ C$
Storage Temperature Range		T_{stg}	-55~150	$^\circ C$



1, 5, 8, 12 BASE
2, 4, 9, 11 COLLECTOR
3, 6, 7, 10 EMITTER

JEDEC —

EIAJ —

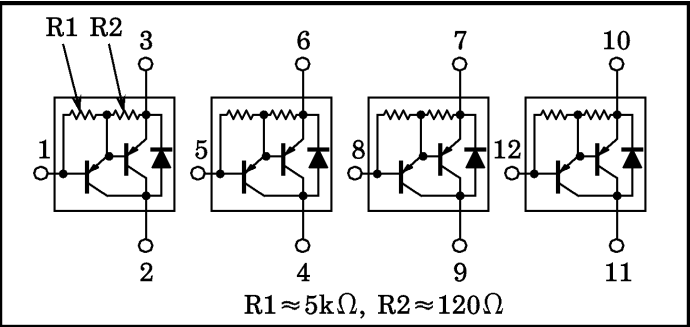
TOSHIBA 2-32B1B

Weight : 6.0g

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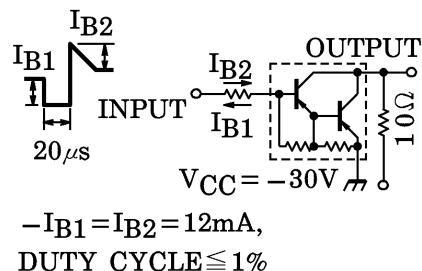
ARRAY CONFIGURATION



THERMAL CHARACTERISTICS

CHARACTERISTIC	SYMBOL	MAX.	UNIT
Thermal Resistance of Junction to Ambient (4 Devices Operation, Ta=25°C)	$\Sigma R_{th(j-a)}$	25	°C / W
Thermal Resistance of Junction to Case (4 Devices Operation, Tc=25°C)	$\Sigma R_{th(j-c)}$	5.0	°C / W
Maximum Lead Temperature for Soldering Purposes (3.2mm from Case for 10s)	T _L	260	°C

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	—	—	-10	μA
Collector Cut-off Current		I _{CEO}	V _{CE} = -100V, I _B = 0	—	—	-10	μA
Emitter Cut-off Current		I _{EBO}	V _{EB} = -5V, I _C = 0	-0.3	—	-2.0	mA
Collector-Base Breakdown Voltage		V _{(BR) CBO}	I _C = -1mA, I _E = 0	-100	—	—	V
Collector-Emitter Breakdown Voltage		V _{(BR) CEO}	I _C = -30mA, I _B = 0	-100	—	—	V
DC Current Gain		h _{FE} (1)	V _{CE} = -3V, I _C = -0.5A	1000	—	—	
		h _{FE} (2)	V _{CE} = -3V, I _C = -3A	1000	—	—	
Saturation Voltage	Collector-Emitter	V _{CE (sat)}	I _C = -3A, I _B = -12mA	—	—	-2.0	V
	Base-Emitter	V _{BE (sat)}	I _C = -3A, I _B = -12mA	—	—	-2.5	
Transition Frequency		f _T	V _{CE} = -3V, I _C = -0.5A	3	—	—	MHz
Collector Output Capacitance		C _{ob}	V _{CB} = -50V, I _E = 0, f = 1MHz	—	40	—	pF
Switching Time	Turn-on Time	t _{on}		—	0.5	—	μs
	Storage Time	t _{stg}		—	3.0	—	
	Fall Time	t _f		—	2.0	—	

EMITTER-COLLECTOR DIODE RATINGS AND CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Forward Current	I _{FM}	—	—	—	5	A
Surge Current	I _{FSM}	t = 1s, 1 shot	—	—	8	A
Forward Voltage	V _F	I _F = 1A, I _B = 0	—	—	2.0	V
Reverse Recovery Time	t _{rr}	I _F = 5A, V _{BE} = 3V, dI _F / dt = 50A / μs	—	1.0	—	μs
Reverse Recovery Charge	Q _{rr}		—	8	—	μC

