

MP4303

HIGH POWER SWITCHING APPLICATIONS.

HAMMER DRIVE, PULSE MOTOR DRIVE AND INDUCTIVE LOAD SWITCHING.

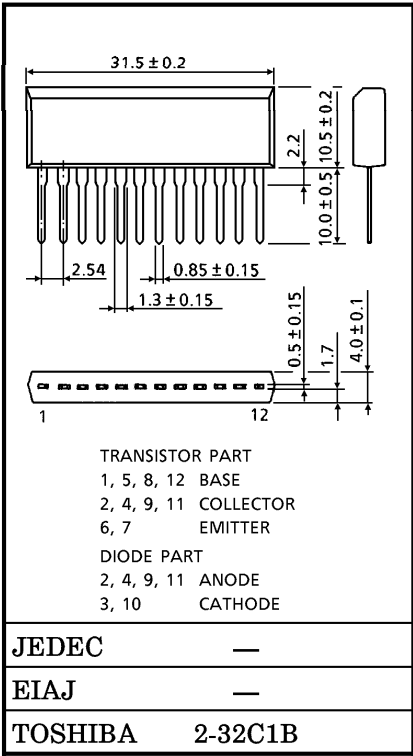
- Small Package by Full Molding (SIP 12 Pin)
- High Collector Power Dissipation (4 Devices Operation)
: $P_T=4.4W$ ($T_a=25^{\circ}C$)
- High Collector Current : I_C (DC)=2A (Max.)
- High DC Current Gain : $h_{FE}=2000$ (Min.) ($V_{CE}=2V$, $I_C=1A$)

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

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Base Voltage		V_{CBO}	120	V
Collector-Emitter Voltage		V_{CEO}	100	V
Emitter-Base Voltage		V_{EBO}	6	V
Collector Current	DC	I_C	2	A
	Pulse	I_{CP}	4	
Continuous Base Current		I_B	0.5	A
Collector Power Dissipation (1 Device Operation)		P_C	2.2	W
Collector Power Dissipation (4 Devices Operation)		P_T	4.4	W
Junction Temperature		T_j	150	$^{\circ}C$
Storage Temperature Range		T_{stg}	-55~150	$^{\circ}C$

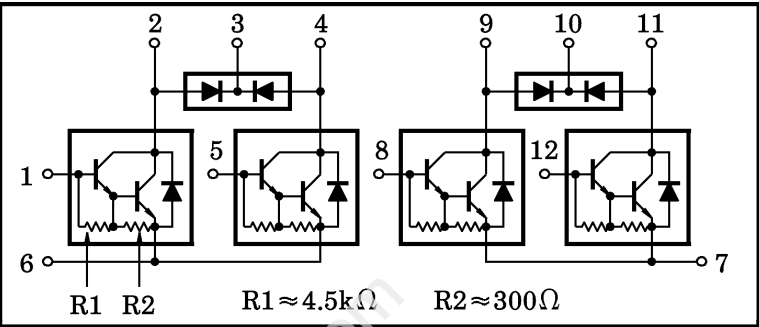
INDUSTRIAL APPLICATIONS

Unit in mm



Weight : 3.9g

ARRAY CONFIGURATION



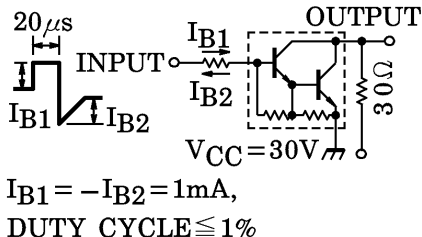
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THERMAL CHARACTERISTICS

CHARACTERISTIC	SYMBOL	MAX.	UNIT
Thermal Resistance of Junction to Ambient (4 Devices Operation, $T_a = 25^\circ\text{C}$)	$\Sigma R_{th(j-a)}$	28.4	$^\circ\text{C} / \text{W}$
Maximum Lead Temperature for Soldering Purposes (3.2mm from Case for 10s)	T_L	260	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current		I_{CBO}	$V_{CB} = 120\text{V}$, $I_E = 0$	—	—	10	μA
Collector Cut-off Current		I_{CEO}	$V_{CE} = 100\text{V}$, $I_B = 0$	—	—	10	μA
Emitter Cut-off Current		I_{EBO}	$V_{EB} = 6\text{V}$, $I_C = 0$	0.5	—	2.5	mA
Collector-Base Breakdown Voltage		$V_{(BR)CBO}$	$I_C = 1\text{mA}$, $I_E = 0$	120	—	—	V
Collector-Emitter Breakdown Voltage		$V_{(BR)CEO}$	$I_C = 10\text{mA}$, $I_B = 0$	100	—	—	V
DC Current Gain		$h_{FE(1)}$	$V_{CE} = 2\text{V}$, $I_C = 1\text{A}$	2000	—	15000	
		$h_{FE(2)}$	$V_{CE} = 2\text{V}$, $I_C = 2\text{A}$	1000	—	—	
Saturation Voltage	Collector-Emitter	$V_{CE(sat)}$	$I_C = 1\text{A}$, $I_B = 1\text{mA}$	—	—	1.5	V
	Base-Emitter	$V_{BE(sat)}$	$I_C = 1\text{A}$, $I_B = 1\text{mA}$	—	—	2.0	
Transition Frequency		f_T	$V_{CE} = 2\text{V}$, $I_C = 0.5\text{A}$	—	100	—	MHz
Collector Output Capacitance		C_{ob}	$V_{CB} = 10\text{V}$, $I_E = 0$, $f = 1\text{MHz}$	—	20	—	pF
Switching Time	Turn-on Time	t_{on}		—	0.4	—	μs
	Storage Time	t_{stg}		—	4.0	—	
	Fall Time	t_f		—	0.6	—	

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EMITTER-COLLECTOR DIODE RATINGS AND CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Maximum Forward Current	I_{FM}	—	—	—	2	A
Surge Current	I_{FSM}	$t = 1\text{s}$, 1 shot	—	—	4	A
Forward Voltage	V_F	$I_F = 0.5\text{A}$, $I_B = 0$	—	—	2.0	V
Reverse Recovery Time	t_{rr}	$I_F = 2\text{A}$, $V_{BE} = -3\text{V}$, $dI_F / dt = -50\text{A} / \mu\text{s}$	—	1.0	—	μs
Reverse Recovery Charge	Q_{rr}		—	5	—	μC

FLYBACK-DIODE RATINGS AND CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Maximum Forward Current	I_{FM}	—	—	—	2	A
Reverse Current	I_R	$V_R = 120\text{V}$	—	—	0.4	μA
Reverse Voltage	V_R	$I_R = 100\mu\text{A}$	120	—	—	V
Forward Voltage	V_F	$I_F = 0.5\text{A}$	—	—	1.8	V

