

MP4303

HIGH POWER SWITCHING APPLICATIONS.

HAMMER DRIVE, PULSE MOTOR DRIVE AND INDUCTIVE LOAD SWITCHING.

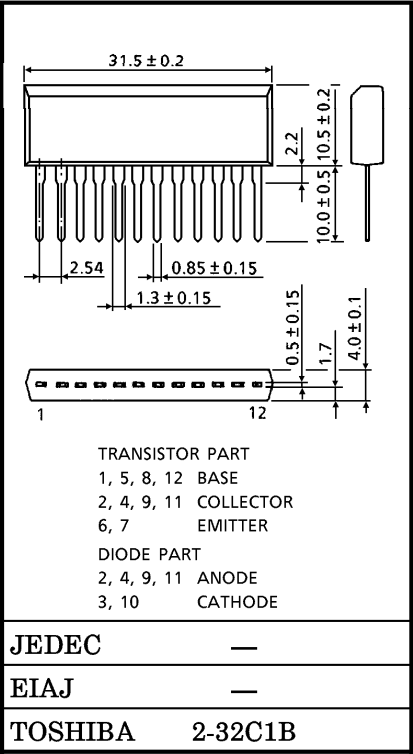
- Small Package by Full Molding (SIP 12 Pin)
- High Collector Power Dissipation (4 Devices Operation)
: $P_T=4.4W$ ($T_a=25^{\circ}C$)
- High Collector Current : I_C (DC)=2A (Max.)
- High DC Current Gain : $h_{FE}=2000$ (Min.) ($V_{CE}=2V$, $I_C=1A$)

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 | $^{\circ}C$ |

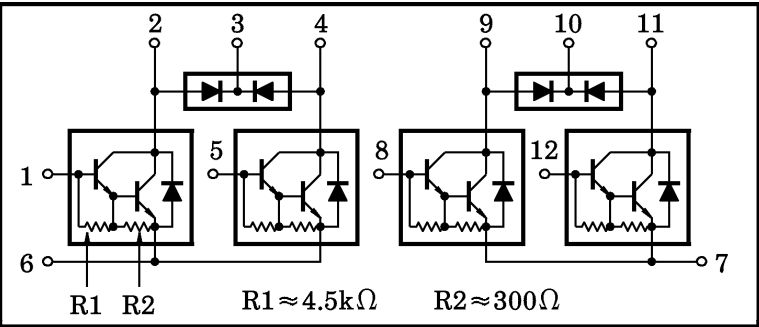
INDUSTRIAL APPLICATIONS

Unit in mm



Weight : 3.9g

ARRAY CONFIGURATION



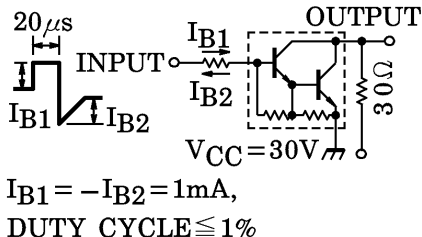
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THERMAL CHARACTERISTICS

| 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 |

