

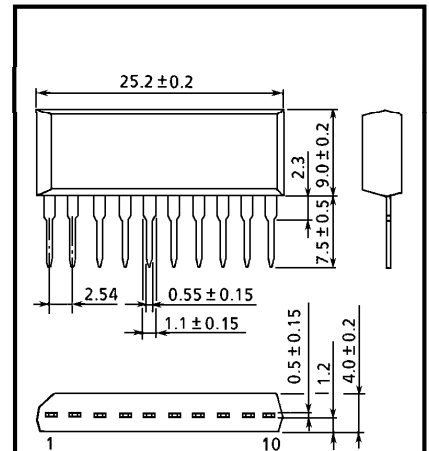
MP4101

HIGH POWER SWITCHING APPLICATIONS.
 HAMMER DRIVE, PULSE MOTOR DRIVE.
 INDUCTIVE LOAD SWITCHING.

INDUSTRIAL APPLICATIONS

Unit in mm

- Small Package by Full Molding (SIP 10 Pin)
- High Collector Power Dissipation (4 Devices Operation)
 : $P_T = 4W$ ($T_a = 25^\circ C$)
- High Collector Current : I_C (DC) = 4A (Max.)
- High DC Current Gain : $h_{FE} = 2000$ (Min.) ($V_{CE} = 2V$, $I_C = 1A$)
- Zener Diode Included Between Collector and Base.



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

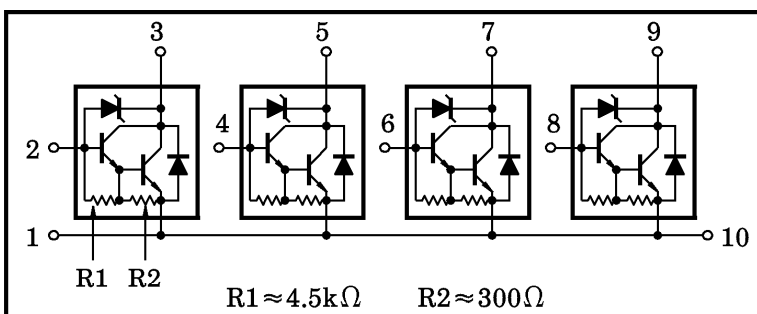
| | |
|---------|---------|
| JEDEC | — |
| EIAJ | — |
| TOSHIBA | 2-25A1A |

Weight : 2.1g

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

| 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} | 6 | V |
| Collector Current | DC | I_C | 4 |
| | Pulse | I_{CP} | 6 |
| Continuous Base Current | I_B | 0.5 | A |
| Collector Power Dissipation (1 Device Operation) | P_C | 2.0 | W |
| Collector Power Dissipation (4 Devices Operation) | P_T | 4.0 | W |
| Junction Temperature | T_j | 150 | $^\circ C$ |
| Storage Temperature Range | T_{stg} | $-55 \sim 150$ | $^\circ C$ |

ARRAY CONFIGURATION



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THERMAL CHARACTERISTICS

| CHARACTERISTIC | SYMBOL | MAX. | UNIT |
|--|----------------------|------|------|
| Thermal Resistance of Junction to Ambient (4 Devices Operation, Ta=25°C) | $\Sigma R_{th(j-a)}$ | 31.3 | °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} = 45V, I _E = 0 | — | — | 10 | μA |
| Collector Cut-off Current | | I _{CEO} | V _{CE} = 45V, I _B = 0 | — | — | 10 | μA |
| Emitter Cut-off Current | | I _{EBO} | V _{EB} = 6V, I _C = 0 | 0.6 | — | 20 | mA |
| Collector-Base Breakdown Voltage | | V _{(BR)CBO} | I _C = 10mA, I _E = 0 | 50 | 60 | 70 | V |
| Collector-Emitter Breakdown Voltage | | V _{(BR)CEO} | I _C = 10mA, I _B = 0 | 50 | 60 | 70 | V |
| DC Current Gain | | h _{FE} (1) | V _{CE} = 2V, I _C = 1A | 2000 | — | 15000 | |
| | | h _{FE} (2) | V _{CE} = 2V, I _C = 3A | 1000 | — | — | |
| Saturation Voltage | Collector-Emitter | V _{CE(sat)} | I _C = 3A, I _B = 10mA | — | — | 1.5 | V |
| | Base-Emitter | V _{BE(sat)} | I _C = 3A, I _B = 10mA | — | — | 2.0 | |
| Transition Frequency | | f _T | V _{CE} = 2V, I _C = 0.5A | — | 60 | — | MHz |
| Collector Output Capacitance | | C _{ob} | V _{CB} = 10V, I _E = 0A, f = 1MHz | — | 30 | — | pF |
| Switching Time | Turn-on Time | t _{on} | <p>20μs INPUT I_{B1} I_{B2} OUTPUT 10Ω V_{CC} = 30V</p> <p>I_{B1} = -I_{B2} = 10mA, DUTY CYCLE ≤ 1%</p> | — | 0.2 | — | μs |
| | Storage Time | t _{stg} | | — | 3.0 | — | |
| | Fall Time | t _f | | — | 0.5 | — | |

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