

2PG006

Silicon N-channel enhancement IGBT

For plasma display panel drive
For high speed switching circuits

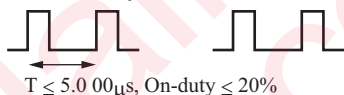
■ Features

- Low collector-emitter saturation voltage: $V_{CE(sat)} < 2.4$ V
- High-speed switching: $t_r = 175$ ns (typ.)

■ Absolute Maximum Ratings $T_C = 25^\circ\text{C}$

| Parameter | Symbol | Rating | Unit |
|---------------------------------------|-----------|---------------------------------|------------------|
| Collector-emitter voltage (E-B short) | V_{CES} | 430 | V |
| Gate-emitter voltage (E-B short) | V_{GES} | -30 to +35 | V |
| Collector current | I_C | 40 | A |
| Peak collector current * | I_{CP} | 230 | A |
| Power dissipation | P_C | 40 | W |
| | | $T_a = 25^\circ\text{C}$ 2.0 | W |
| Junction temperature | T_j | 150 | $^\circ\text{C}$ |
| Storage temperature | T_{stg} | -55 to +150 | $^\circ\text{C}$ |

Note) *: Assurance of repetitive pulse. (Repetitive period ≤ 5 μs on-duty $\leq 20\%$)
But, it must stay within 40% of all that the time impressed pulse repetitively.



■ Electrical Characteristics $T_C = 25^\circ\text{C} \pm 3^\circ\text{C}$

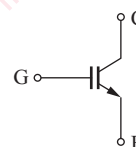
| Parameter | Symbol | Conditions | Min | Typ | Max | Unit | |
|---|---------------|--|-----|-------|-----------|---------------|----|
| Collector-emitter voltage (E-B short) | V_{CES} | $I_C = 1$ mA, $V_{GE} = 0$ | 430 | | | V | |
| Collector-emitter cutoff current (E-B short) * | I_{CES} | $V_{CE} = 344$ V, $V_{GE} = 0$ | | | 5.0 | μA | |
| Gate-emitter cutoff current (E-B short) | I_{GES} | $V_{GE} = \pm 35$ V, -30 V, $V_{CE} = 0$ | | | ± 1.0 | μA | |
| Gate-emitter threshold voltage | $V_{GE(th)}$ | $V_{CE} = 10$ V, $I_C = 1.0$ mA | 3.0 | | 5.5 | V | |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $V_{GE} = 15$ V, $I_C = 40$ A | | 1.75 | 2.4 | V | |
| Collector-emitter reverse break down voltage | $-V_{CE}$ | $I_C = -100$ mA, $V_{GE} = 15$ V | 18 | 22.5 | | V | |
| Short-circuit input capacitance (Common emitter) | C_{ies} | $V_{CE} = 25$ V, $V_{GE} = 0$, $f = 1$ MHz | | 1 200 | | pF | |
| Short-circuit output capacitance (Common emitter) | C_{oes} | | | | 130 | | pF |
| Reverse transfer capacitance (Common emitter) | C_{res} | | | | 20 | | pF |
| Gate charge load | Q_g | $V_{CC} = 200$ V, $I_C = 40$ A, $V_{GE} = 15$ V | | 54 | | nC | |
| Gate-emitter charge | Q_{ge} | | | | 7 | | nC |
| Gate-collector charge | Q_{gc} | | | | 22 | | nC |
| Turn-on delay time | $t_{d(on)}$ | $V_{CC} = 200$ V, $I_C = 40$ A, $RL \approx 5 \Omega$, $V_{GE} = 15$ V | | 65 | | ns | |
| Rise time | t_r | | | | 400 | | ns |
| Turn-off delay time | $t_{d(off)}$ | | | | 185 | | ns |
| Fall time | t_f | | | | 175 | 260 | ns |

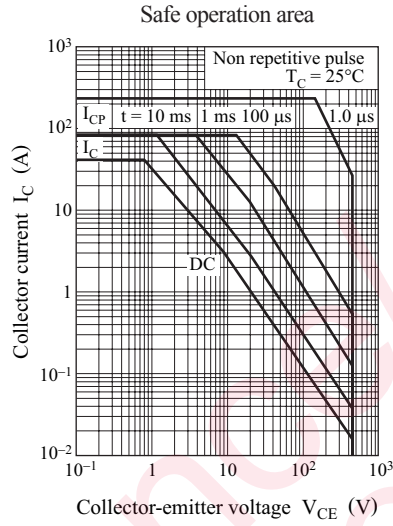
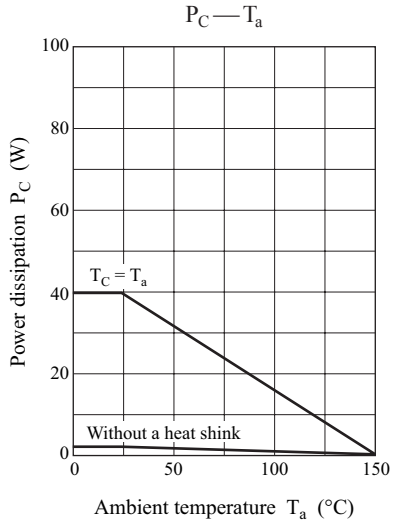
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.
2. *: I_{CES} is 100% tested according to the I_{CES} inspection standards. ($< 1.0 \mu\text{A}$ under the conditions of $V_{CE} = 344$ V, $V_{GE} = 0$)

■ Package

- Code
TO-220D-A1
- Marking Symbol: 2PG006
- Pin Name
 1. Gate
 2. Collector
 3. Emitter

■ Internal Connection





Maintenance/Discontinued

includes following four Product lifecycle stage.

planned maintenance type

planned discontinued type

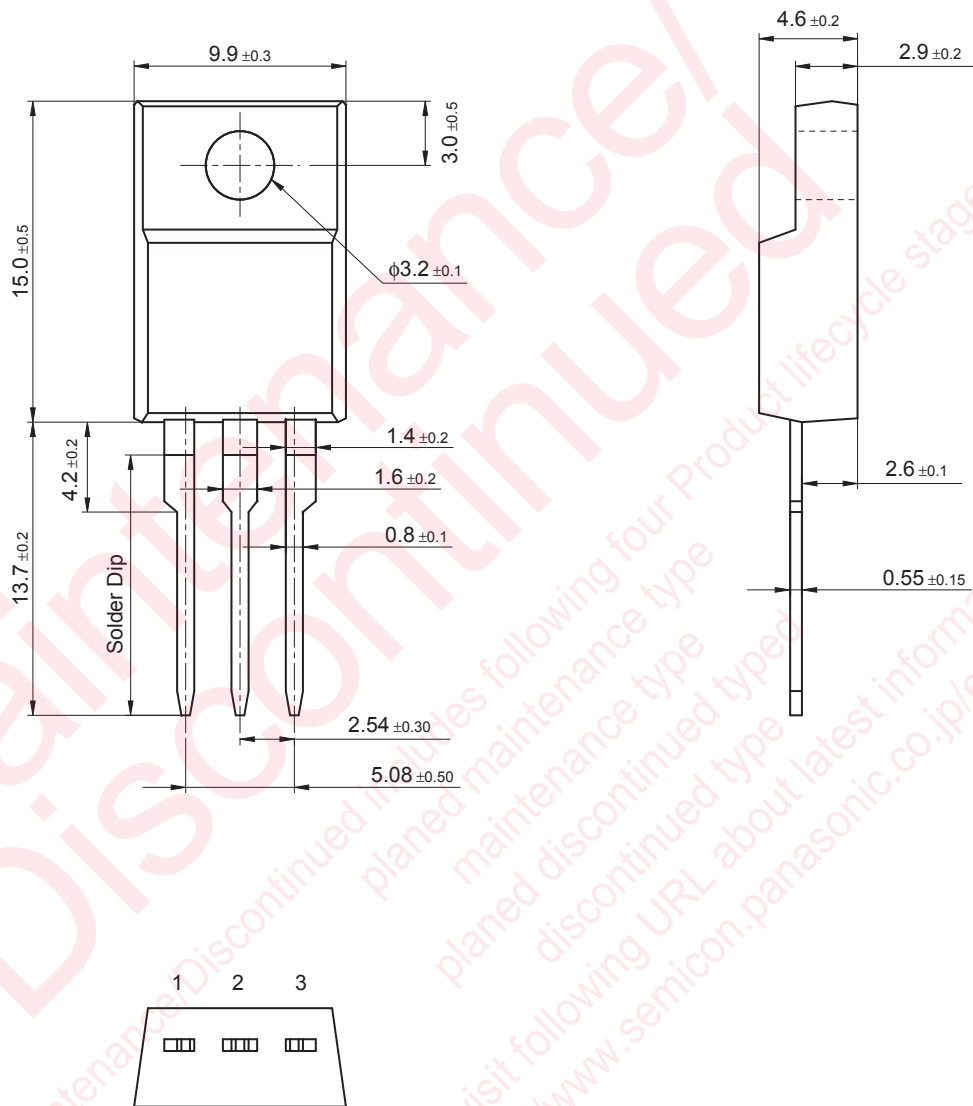
discontinued type

Please visit following URL about latest information.

<http://www.semicon.panasonic.co.jp/en/>

TO-220D-A1

Unit: mm



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