

# QM5HG-24

MEDIUM POWER SWITCHING USE  
NON-INSULATED TYPE

## QM5HG-24



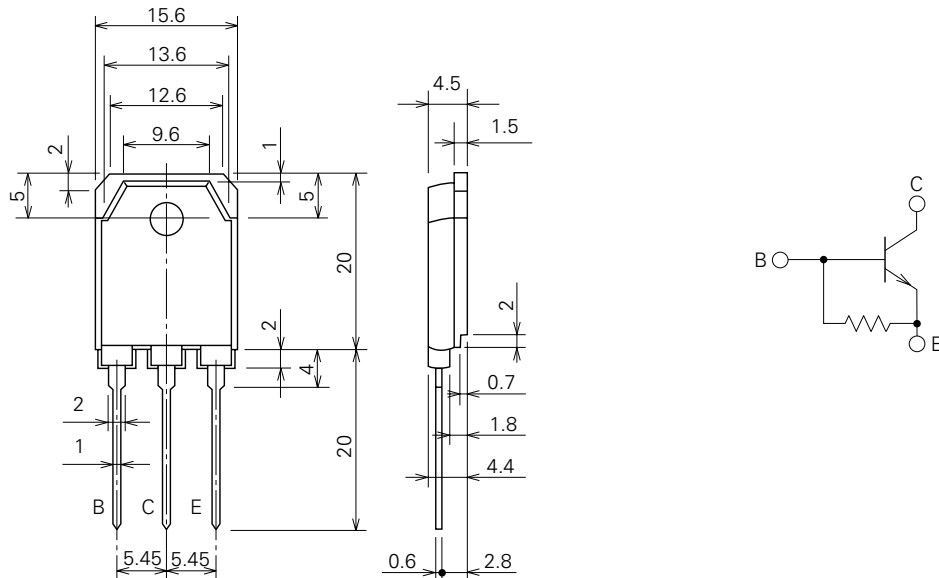
- **I<sub>C</sub>** Collector current ..... **5A**
- **V<sub>CEX</sub>** Collector-emitter voltage ..... **1200V**
- **h<sub>FE</sub>** DC current gain ..... **5**
- **Non-Insulated Type**

## APPLICATION

Base driver for High voltage transistor modules

## OUTLINE DRAWING & CIRCUIT DIAGRAM

Dimensions in mm



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## ABSOLUTE MAXIMUM RATINGS (T<sub>J</sub>=25°C, unless otherwise noted)

| Symbol           | Parameter                 | Conditions           | Ratings   | Unit  |
|------------------|---------------------------|----------------------|-----------|-------|
| V <sub>CEX</sub> | Collector-emitter voltage | V <sub>EB</sub> =2V  | 1200      | V     |
| V <sub>CBO</sub> | Collector-base voltage    | Emitter open         | 1200      | V     |
| V <sub>EBO</sub> | Emitter-base voltage      | Collector open       | 7         | V     |
| I <sub>C</sub>   | Collector current         | DC                   | 5.0       | A     |
| P <sub>C</sub>   | Collector dissipation     | T <sub>C</sub> =25°C | 100       | W     |
| I <sub>B</sub>   | Base current              | DC                   | 2         | A     |
| T <sub>J</sub>   | Junction temperature      |                      | -40~+150  | °C    |
| T <sub>stg</sub> | Storage temperature       |                      | -40~+125  | °C    |
| —                | Mounting torque           | Mounting screw M3    | 0.59~0.98 | N·m   |
| —                | Weight                    | Typical value        | 6~10      | kg·cm |
| —                | Weight                    | Typical value        | 5         | g     |

## ELECTRICAL CHARACTERISTICS (T<sub>J</sub>=25°C, unless otherwise noted)

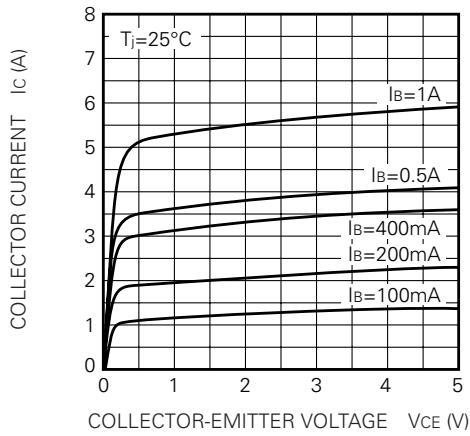
| Symbol                  | Parameter                                | Test conditions                                                                          | Limits |      |      | Unit |
|-------------------------|------------------------------------------|------------------------------------------------------------------------------------------|--------|------|------|------|
|                         |                                          |                                                                                          | Min.   | Typ. | Max. |      |
| I <sub>CX</sub>         | Collector cutoff current                 | V <sub>CE</sub> =1200V, V <sub>EB</sub> =2V                                              | —      | —    | 1.0  | mA   |
| I <sub>CBO</sub>        | Collector cutoff current                 | V <sub>CB</sub> =1200V, Emitter open                                                     | —      | —    | 1.0  | mA   |
| I <sub>EBO</sub>        | Emitter cutoff current                   | V <sub>EB</sub> =7V                                                                      | —      | —    | 50   | mA   |
| V <sub>CE (sat)</sub>   | Collector-emitter saturation voltage     | I <sub>C</sub> =3A, I <sub>B</sub> =0.6A                                                 | —      | —    | 1.0  | V    |
| V <sub>BE (sat)</sub>   | Base-emitter saturation voltage          | I <sub>C</sub> =3A, I <sub>B</sub> =0.6A                                                 | —      | —    | 1.5  | V    |
| h <sub>FE</sub>         | DC current gain                          | I <sub>C</sub> =3A, V <sub>CE</sub> =1V                                                  | 5      | —    | —    | —    |
| t <sub>on</sub>         | Switching time                           | V <sub>CC</sub> =600V, I <sub>C</sub> =3A, I <sub>B1</sub> =0.6A, -I <sub>B2</sub> =1.2A | —      | —    | 1.0  | μs   |
| t <sub>s</sub>          |                                          |                                                                                          | —      | —    | 4.0  | μs   |
| t <sub>f</sub>          |                                          |                                                                                          | —      | —    | 0.8  | μs   |
| R <sub>th (j-c) Q</sub> | Thermal resistance (junction to case)    | Transistor part                                                                          | —      | —    | 1.25 | °C/W |
| R <sub>th (j-c) R</sub> |                                          | Diode part                                                                               | —      | —    | —    | °C/W |
| R <sub>th (c-f)</sub>   | Contact thermal resistance (case to fin) | Conductive grease applied                                                                | —      | —    | 0.5  | °C/W |

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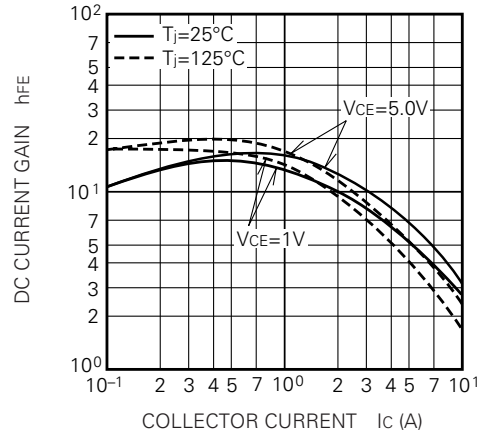
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## PERFORMANCE CURVES

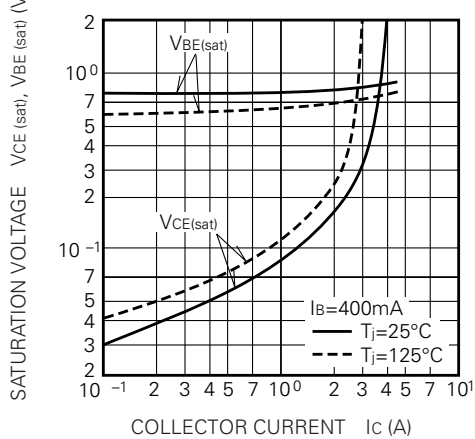
COMMON EMITTER OUTPUT  
CHARACTERISTICS (TYPICAL)



DC CURRENT GAIN VS.  
COLLECTOR CURRENT (TYPICAL)



SATURATION VOLTAGE  
CHARACTERISTICS (TYPICAL)



SWITCHING TIME VS. COLLECTOR  
CURRENT (TYPICAL)

