



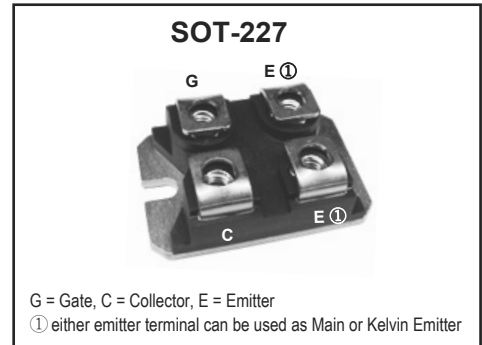
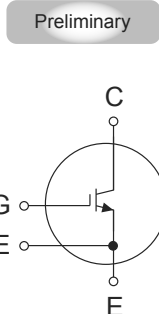
IGBT Module 600V / 100A

Features

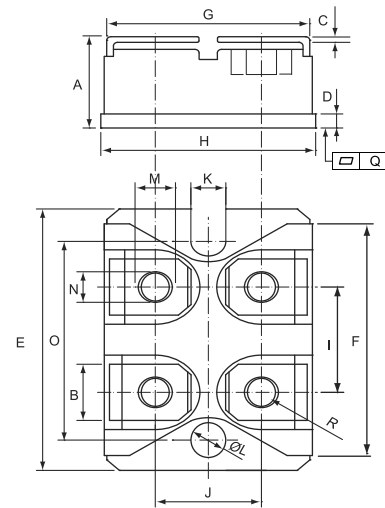
- ◆ IGBT NPT trench technology
- ◆ High short circuit capability

Applications

- ◆ Welder / Power Supply
- ◆ UPS / Inverter
- ◆ Industrial Motor Drive



Dimensions in inches and (millimeters)



Maximum Ratings (T_c= 25°C)

| Item | Symbol | Rated Value | Unit |
|--|------------------|-----------------|------|
| Collector-Emitter Voltage | V _{CES} | 600 | V |
| Gate-Emitter Voltage | V _{GES} | ±20 | V |
| Collector Current | DC | I _C | A |
| | 1ms | I _{CP} | |
| Collector Power Dissipation | P _C | 400 | W |
| Isolation Voltage (e Terminal to Base, AC 1 min.) | V _{iso} | 2500 | V |
| Junction Temperature Range | T _J | -55~+150 | °C |
| Storage Temperature Range | T _{stg} | -55~+150 | °C |
| Mounting torque (M4 Screw) | M _d | 1.3 | N.m |

| | DIMENSIONS | | | |
|---|------------|-------|-------|-------|
| | INCHES | | MM | |
| | MIN | MAX | MIN | MAX |
| A | 0.460 | 0.483 | 11.68 | 12.28 |
| B | 0.307 | 0.323 | 7.80 | 8.20 |
| C | 0.030 | 0.033 | 0.75 | 0.85 |
| D | 0.071 | 0.081 | 1.80 | 2.05 |
| E | 1.488 | 1.504 | 37.80 | 38.20 |
| F | 1.248 | 1.260 | 31.70 | 32.00 |
| G | 0.917 | 0.957 | 23.30 | 24.30 |
| H | 0.996 | 1.008 | 25.30 | 25.60 |
| I | 0.579 | 0.602 | 14.70 | 15.30 |
| J | 0.492 | 0.516 | 12.50 | 13.10 |
| K | 0.161 | 0.169 | 4.10 | 4.30 |
| L | 0.161 | 0.169 | 4.10 | 4.30 |
| M | 0.181 | 0.197 | 4.60 | 5.00 |
| N | 0.165 | 0.181 | 4.20 | 4.60 |
| O | 1.181 | 1.197 | 30.00 | 30.40 |
| Q | -0.002 | 0.004 | -0.05 | 0.10 |
| R | M4*8 | | | |



■ **Electrical Characteristics** ($T_C=25^\circ\text{C}$)

| Characteristic | | Symbol | Test Conditions | Min. | Typ. | Max. | Unit |
|--------------------------------------|---------------|---------------|---|------|------|------|---------------|
| Collector-Emitter Cut-Off Current | | I_{CES} | $V_{CE}=600\text{V}$ $V_{GE}=0\text{V}$ | - | - | 1 | mA |
| Gate-Emitter Leakage Current | | I_{GES} | $V_{GE}=\pm 20\text{V}$ $V_{CE}=0\text{V}$ | - | - | 500 | nA |
| Collector-Emitter Saturation Voltage | | $V_{CE(sat)}$ | $I_C=100\text{A}$, $V_{GE}=15\text{V}$ | - | 2.1 | 2.6 | V |
| Gate-Emitter Threshold Voltage | | $V_{GE(th)}$ | $V_{CE}=5\text{V}$, $I_C=100\text{mA}$ | 4 | - | 8 | V |
| Input Capacitance | | C_{ies} | $V_{CE}=10\text{V}$, $V_{GE}=0\text{V}$, $f=1\text{MHz}$ | - | 8000 | - | pF |
| Switching Time | Rise Time | t_r | $V_{CC}=300\text{V}$ $R_L=3\Omega$ $R_G=7.5\Omega$ $V_{GE}=\pm 15\text{V}$ | - | 0.15 | 0.3 | μs |
| | Turn-On Time | t_{on} | | - | 0.25 | 0.4 | |
| | Fall Time | t_f | | - | 0.2 | 0.35 | |
| | Turn-Off Time | t_{off} | | - | 0.45 | 0.7 | |

■ **Thermal Characteristics** ($T_C=25^\circ\text{C}$)

| Characteristic | Symbol | Test Conditions | Min. | Typ. | Max. | Unit |
|-------------------|---------------|------------------|------|------|------|--------------------|
| Thermal Impedance | $R_{th(j-c)}$ | Junction to Case | - | - | 0.31 | $^\circ\text{C/W}$ |



Typical Characteristics

Fig. 1 Output Characteristics (Typical)

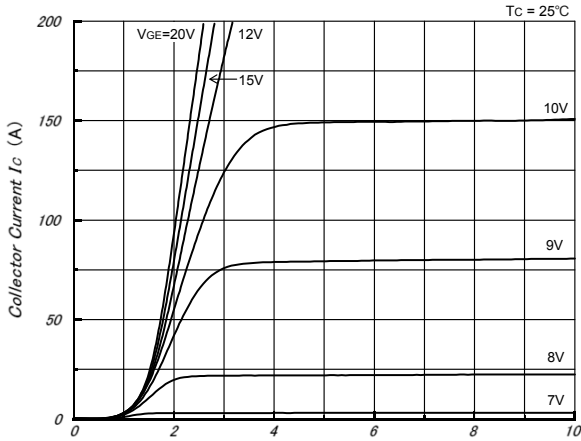


Fig. 2 Collector to Emitter on Voltage vs. Gate to Emitter Voltage (Typical)

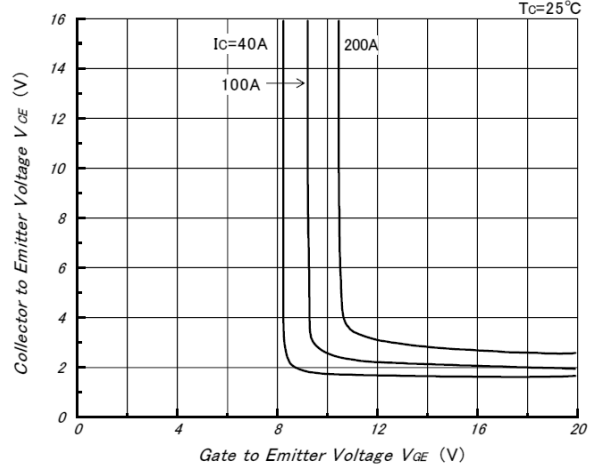


Fig. 3 Collector to Emitter on Voltage vs. Gate to Emitter Voltage (Typical)

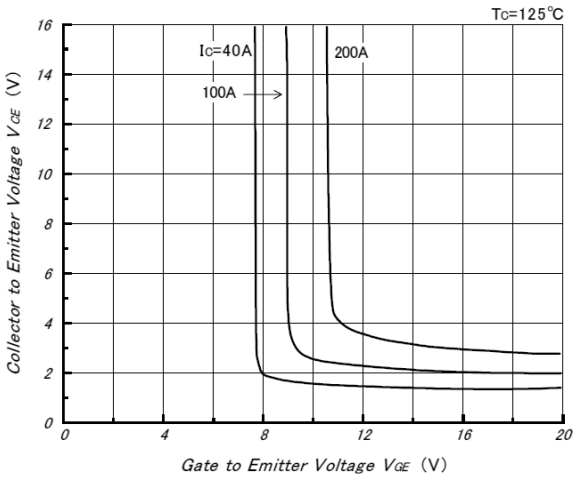


Fig. 4 Gate Charge vs. Collector to Emitter Voltage (Typical)

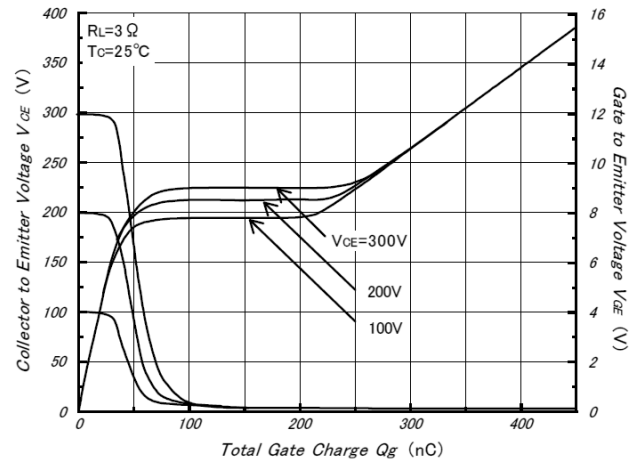


Fig. 5 Capacitance vs. Collector to Emitter Voltage (Typical)

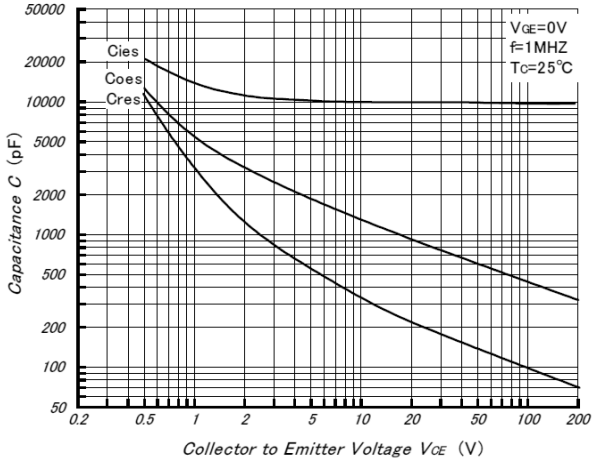
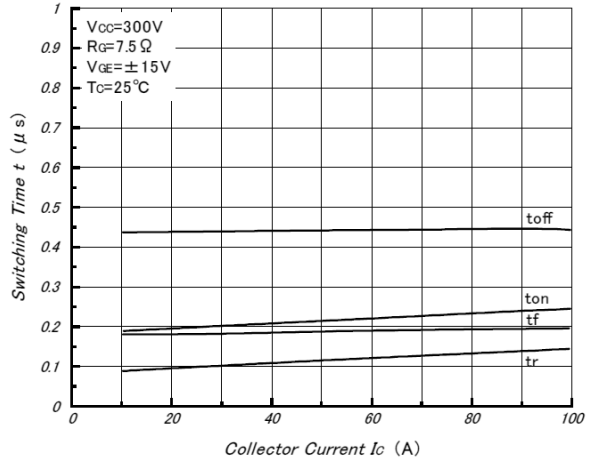


Fig. 6 Collector Current vs. Switching Time (Typical)





Typical Characteristics

Fig. 7 Series Gate Impedance vs. Switching Time (Typical)

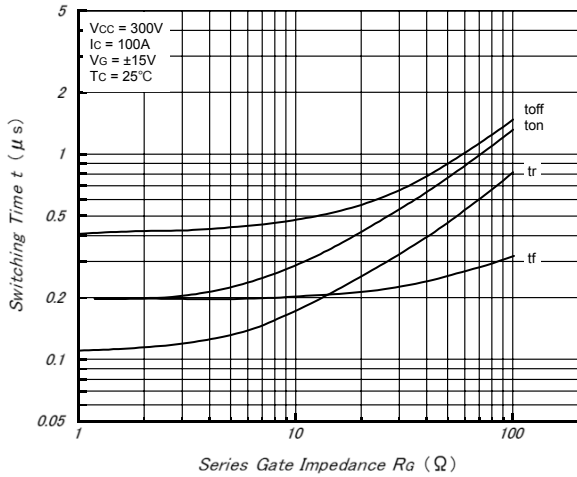


Fig. 8 Reverse Bias Safe Operating Area

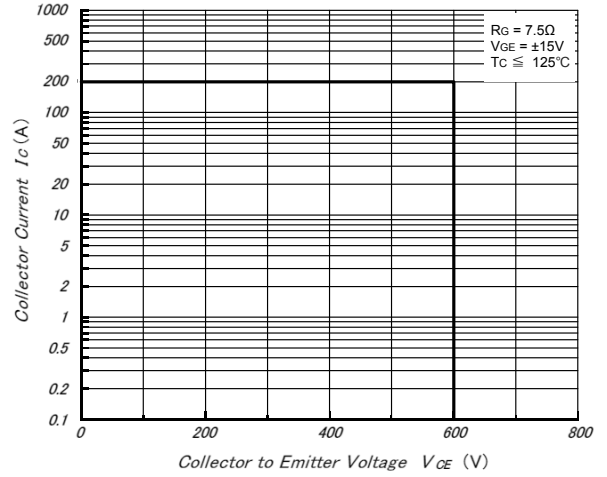
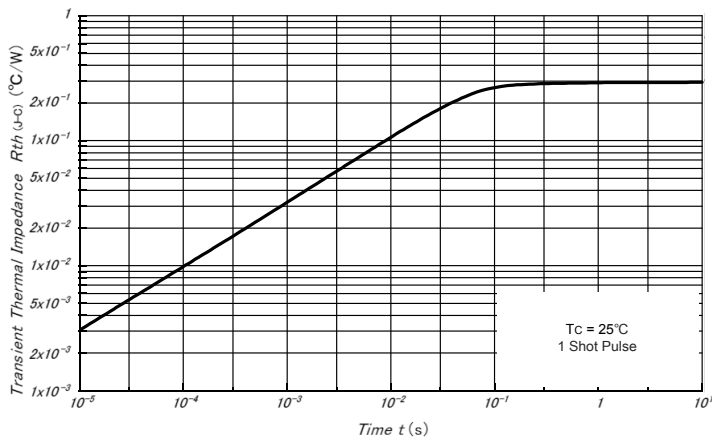


Fig. 9 Transient Thermal Impedance





Disclaimer

DACO Semiconductor reserve the right to make modifications, enhancements, improvements, corrections or other changes without further notice to this document and any product described herein.

DACO Semiconductor makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does DACO Semiconductor assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages.

Purchasers is responsible for its products and applications using DACO Semiconductor products, including compliance with all laws, regulations and safety requirements or standards, regardless of any support or applications information provided by DACO Semiconductor. "Typical" parameters which may be provided in DACO Semiconductor data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts.

DACO Semiconductor products are not designed, authorized or warranted to be suitable for use in life support, life-critical or safety-critical systems or equipment, nor in applications where failure or malfunction of DACO Semiconductor's product can reasonably be expected to result in personal injury, death or severe property or environmental damage. DACO Semiconductor accept no liability for inclusion and/or use of DACO Semiconductor's products in such equipment or applications and therefore such inclusion and/or use is at the customer's own risk.

Purchasers buy or use DACO Semiconductor products for any such unintended or unauthorized application, Purchasers shall indemnify and hold DACO Semiconductor and its suppliers and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that DACO Semiconductor was negligent regarding the design or manufacture of the part.

No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording, or any information storage or retrieval system, or otherwise, without the prior written permission of DACO Semiconductor Co., Ltd.