

SK 25 GAL 063

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SEMISTOP® 1

IGBT Module

SK 25 GAR 063

SK 25 GAL 063

Preliminary Data

Features

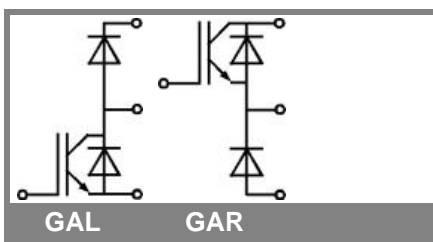
- Compact design
- One screw mounting
- Heat transfer and isolation through direct copper bonded aluminium oxide ceramic (DCB)
- N-channel homogeneous silicon structure (NPT-Non punch-through IGBT)
- High short circuit capability
- Low tail current with low temperature dependence
- UL recognized, file no. E 63 532

Typical Applications

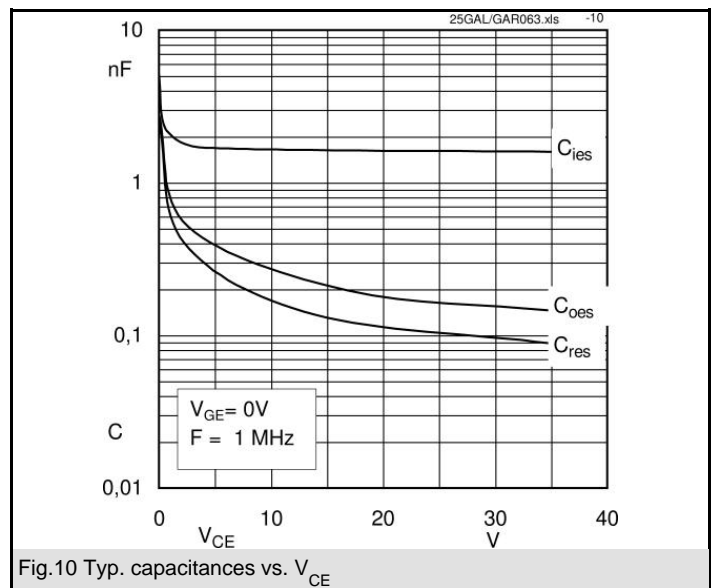
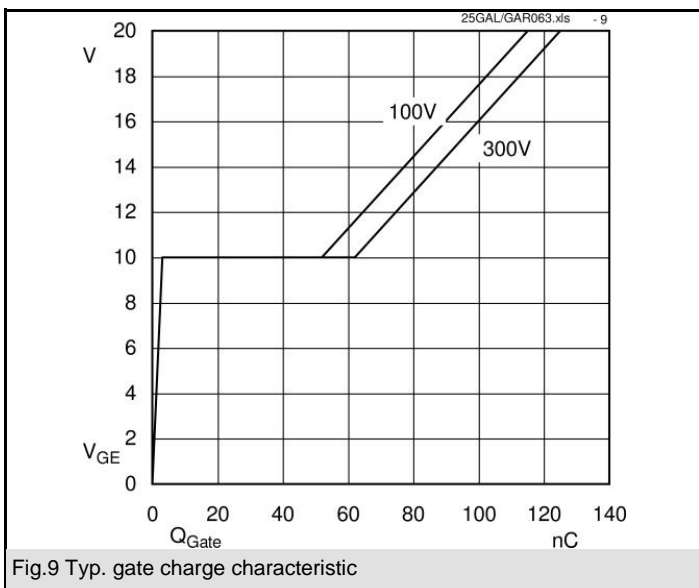
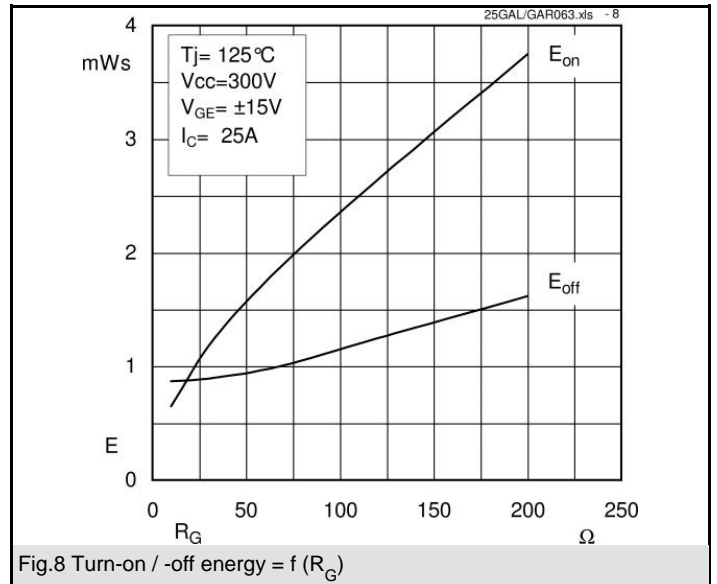
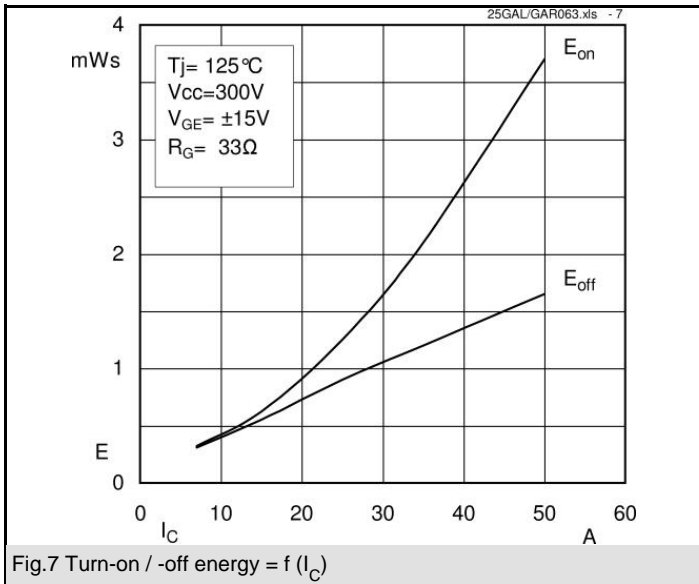
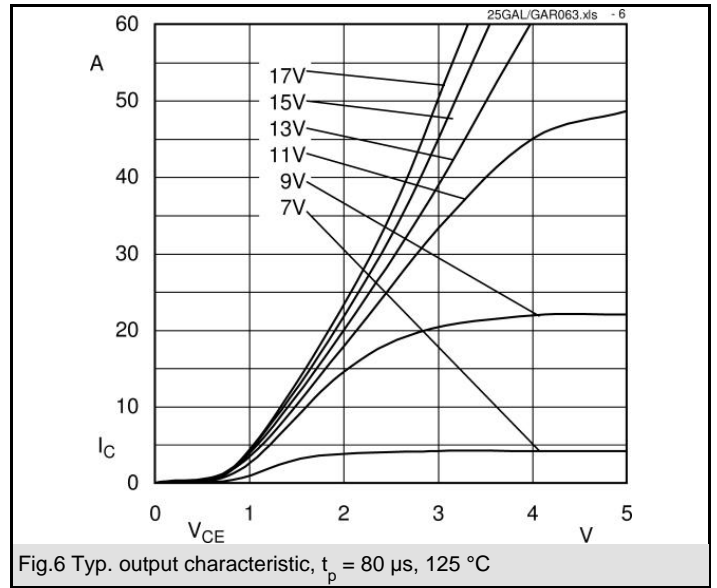
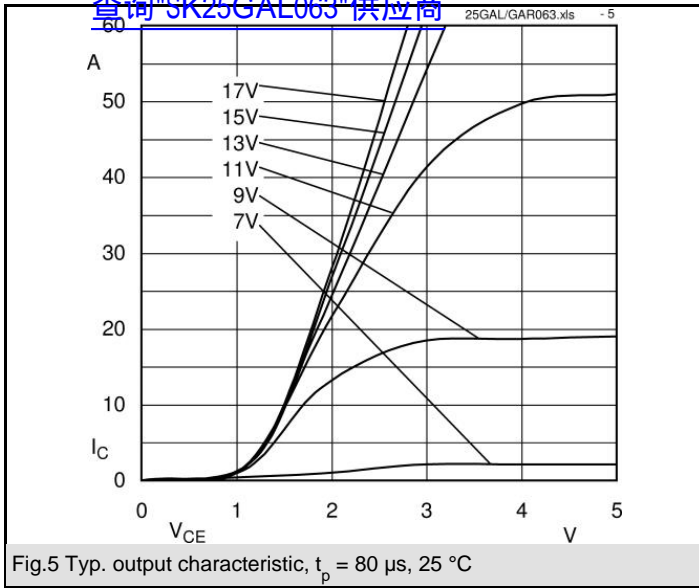
- Switching (not for linear use)
- Driver
- Switched mode power supplies
- UPS

| Absolute Maximum Ratings | | $T_s = 25\text{ }^\circ\text{C}$, unless otherwise specified | |
|-------------------------------|---|---|------------------|
| Symbol | Conditions | Values | Units |
| IGBT | | | |
| V_{CES} | | 600 | V |
| V_{GES} | | ± 20 | V |
| I_C | $T_s = 25\text{ (80) }^\circ\text{C}$; | 30 (21) | A |
| I_{CM} | $t_p < 1\text{ ms}$; $T_s = 25\text{ (80) }^\circ\text{C}$; | 60 (42) | A |
| T_j | | - 40 ... + 150 | $^\circ\text{C}$ |
| Freewheeling CAL diode | | | |
| I_F | $T_s = 25\text{ (80) }^\circ\text{C}$; | 36 (24) | A |
| $I_{FM} = -I_{CM}$ | $t_p < 1\text{ ms}$; $T_s = 25\text{ (80) }^\circ\text{C}$; | 72 (48) | A |
| T_j | | - 40 ... + 150 | $^\circ\text{C}$ |
| T_{stg} | | - 40 ... + 125 | $^\circ\text{C}$ |
| T_{sol} | Terminals, 10 s | 260 | $^\circ\text{C}$ |
| V_{isol} | AC 50 Hz, r.m.s. 1 min. / 1 s | 2500 / 3000 | V |

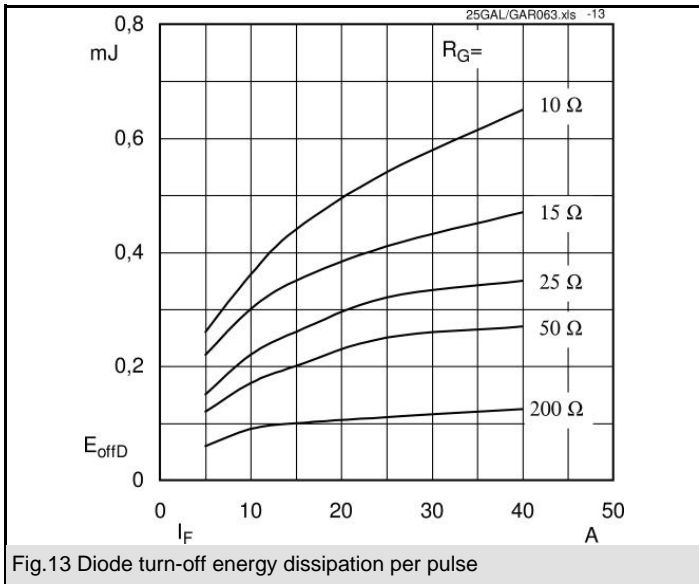
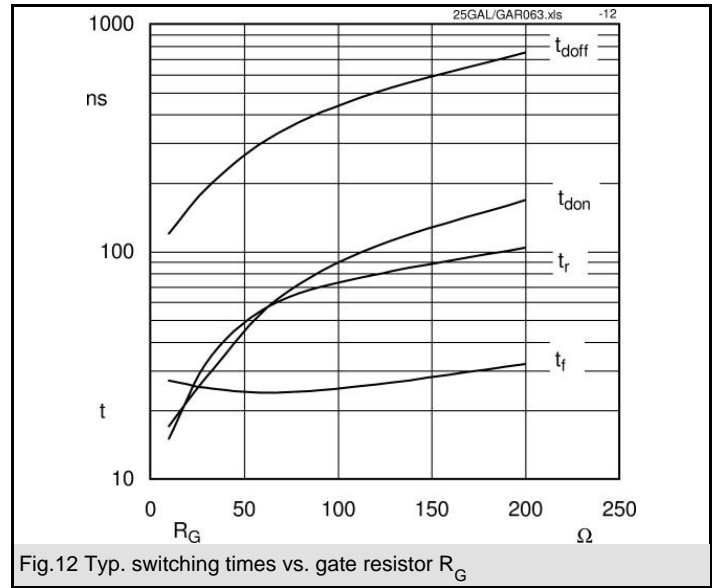
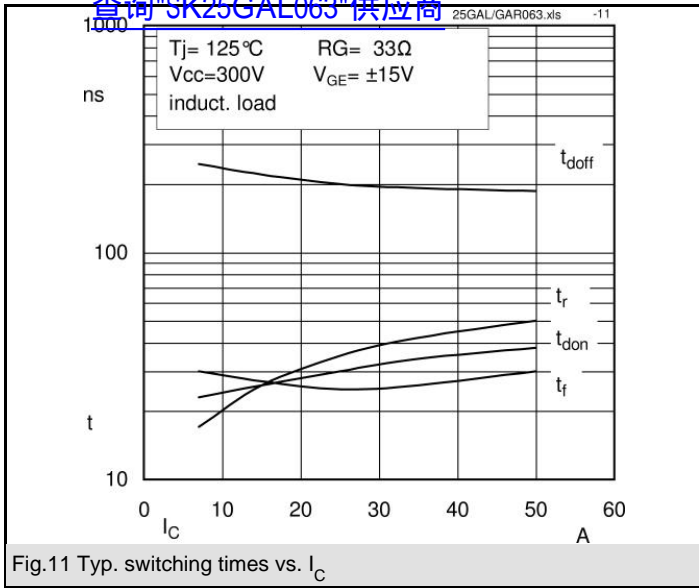
| Characteristics | | $T_s = 25\text{ }^\circ\text{C}$, unless otherwise specified | | | |
|-------------------------------|---|---|------------|------------|---------------|
| Symbol | Conditions | min. | typ. | max. | Units |
| IGBT | | | | | |
| $V_{CE(sat)}$ | $I_C = 20\text{ A}$, $T_j = 25\text{ (125) }^\circ\text{C}$ | | 1,8 (1,9) | 2,2 (2,4) | V |
| $V_{GE(th)}$ | $V_{CE} = V_{GE}$; $I_C = \text{A}$ | 4,5 | 5,5 | 6,5 | V |
| C_{res} | $V_{CE} = 25\text{ V}$; $V_{GE} = 0\text{ V}$; 1 MHz | | 1,6 | | nF |
| $R_{th(j-s)}$ | per IGBT per module | | | 1,4 | K/W K/W |
| $t_{d(on)}$ | under following conditions: $V_{CC} = 300\text{ V}$, $V_{GE} = \pm 15\text{ V}$ | | 30 | | ns |
| t_r | $I_C = 25\text{ A}$, $T_j = 125\text{ }^\circ\text{C}$ | | 35 | | ns |
| $t_{d(off)}$ | $R_{Gon} = R_{Goff} = 33\text{ }\Omega$ | | 200 | | ns |
| t_f | | | 25 | | ns |
| $E_{on} + E_{off}$ | Inductive load | | 2,15 | | mJ |
| Freewheeling CAL diode | | | | | |
| $V_F = V_{EC}$ | $I_F = 25\text{ A}$; $T_j = 25\text{ (125) }^\circ\text{C}$ | | 1,45 (1,4) | 1,7 (1,75) | V |
| $V_{(TO)}$ | $T_j = 125\text{ }^\circ\text{C}$ | | 0,85 | 0,9 | V |
| r_T | $T_j = 125\text{ () }^\circ\text{C}$ | | 22 | 32 | m Ω |
| $R_{th(j-s)}$ | | | | 1,7 | K/W |
| I_{RRM} | under following conditions: $I_F = 25\text{ A}$; $V_R = 300\text{ V}$ | | 16 | | A |
| Q_{rr} | $di_F/dt = -500\text{ A}/\mu\text{s}$ | | 2 | | μC |
| E_{off} | $V_{GE} = 0\text{ V}$; $T_j = 125\text{ }^\circ\text{C}$ | | 0,25 | | mJ |
| Mechanical data | | | | | |
| M1 | mounting torque | | | 1,5 | Nm |
| w | | | 13 | | g |
| Case | SEMISTOP® 1 | | T3 | | |



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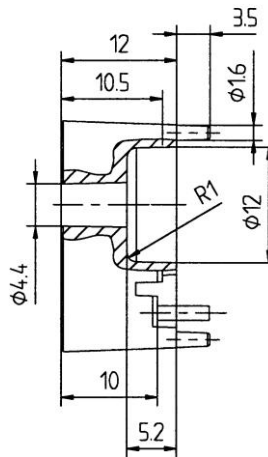
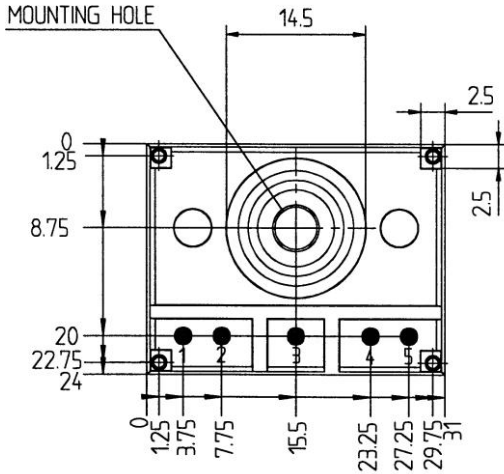
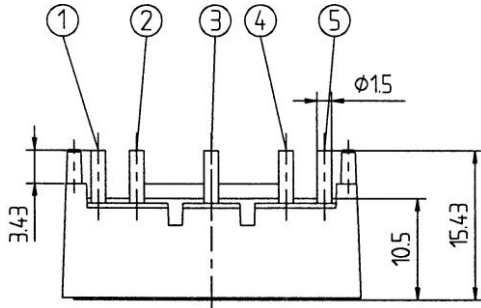


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UL Recognized
File no. E-63532

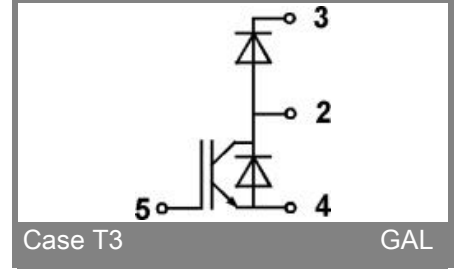
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Dimensions in mm



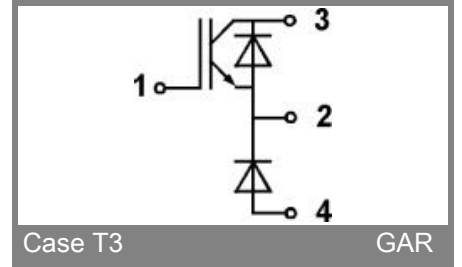
SUGGESTED HOLEDIAMETER FOR THE SOLDER PINS AND THE MOUNTING PINS IN THE PCB: 2 mm

Case T 3



Case T3

GAL



Case T3

GAR

This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, Chapter IX.

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