

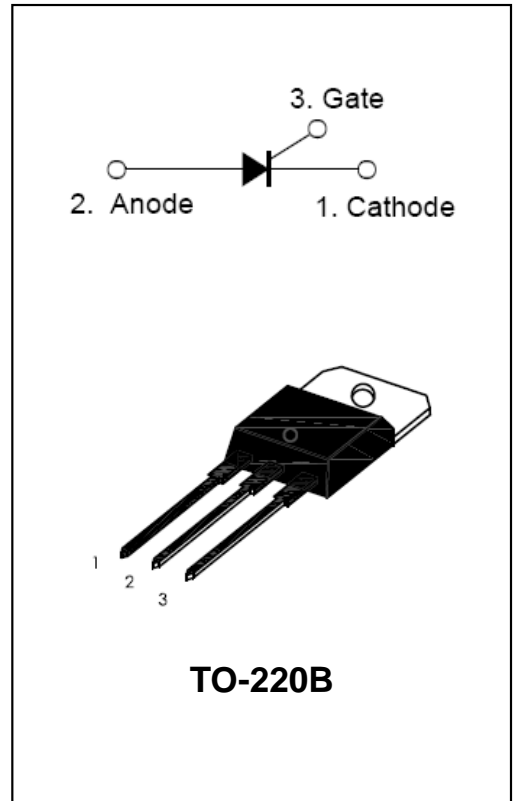


IPS812 series of silicon controlled rectifiers are specifically designed for medium power switching and phase control applications.

High current density due to double mesa technology SIPOS and Glass passivation technology used has reliable operation up to 125°C junction temperature.

Low Igt parts available.

IPS812 series are suitable for general purpose applications, a high gate sensitivity is required.



MAIN FEATURES

| Symbol | Value | Unit |
|-------------|-------|------|
| IT(RMS) | 12 | A |
| IT(AV) | 8 | A |
| VDRM / VRRM | 800 | V |
| VTM | ≤ 1.6 | V |

ABSOLUTE MAXIMUM RATINGS

| Parameter | Symbol | Value | Unit |
|--|---------|-------------|------|
| RMS on-state current (Tc = 105 °C, 180° conduction half sine wave) | IT(RMS) | 12 | A |
| Average on-state current (Tc = 105 °C, 180° conduction half sine wave) | IT(AV) | 8 | A |
| Storage Junction Temperature Range | Tstg | -40 to +150 | °C |
| Operating Junction Temperature Range | Tj | -40 to +110 | °C |
| Repetitive Peak Off-state Voltage Tj = 25 °C | VDRM | 800 | V |
| Repetitive Peak Reverse Voltage Tj = 25 °C | VRRM | 800 | V |
| Non Repetitive Peak Off-state Voltage Tj = 25 °C | VDSM | 900 | V |
| Non Repetitive Peak Reverse Voltage Tj = 25 °C | VRSM | 900 | V |
| One cycle Non Repetitive surge current (Half Cycle, 50Hz) | ITSM | 140 | A |
| I²t Value for fusing (tp = 10ms, Half Cycle) | I²t | 98 | A²s |
| Critical rate of rise of turned – on current (Ig = 2 X IGT, Tj = 125 °C) | di/dt | 50 | A/us |
| Peak gate current tp = 20us, Tj = 125 °C | IGM | 4 | A |
| Average gate power dissipation Tj = 125 °C | PG(AV) | 1 | W |

ELECTRICAL CHARACTERISTICS (T_j = 25 °C unless otherwise specified)

| Symbol | Test Condition | | IPS812-xxB | | Unit |
|-----------------|---|-----|------------|-----|------|
| | | | 05 | 15 | |
| I _{GT} | Required DC gate current to trigger | MAX | 5 | 15 | mA |
| V _{GT} | Required DC voltage to trigger (anode supply = 6V, resistive load) | MAX | 1.3 | | V |
| V _{GD} | DC gate voltage not to trigger (T _j = 110 °C, V _{DRM} = rated value) | MAX | 0.2 | | V |
| I _L | I _G = 1.2 I _{GT} | MAX | 30 | 60 | mA |
| I _H | Holding current | MAX | 15 | 30 | mA |
| dV/dt | V _D = 67% V _{DRM} gate open T _j = 125 °C | MIN | 40 | 200 | V/us |

STATIC CHARACTERISTICS

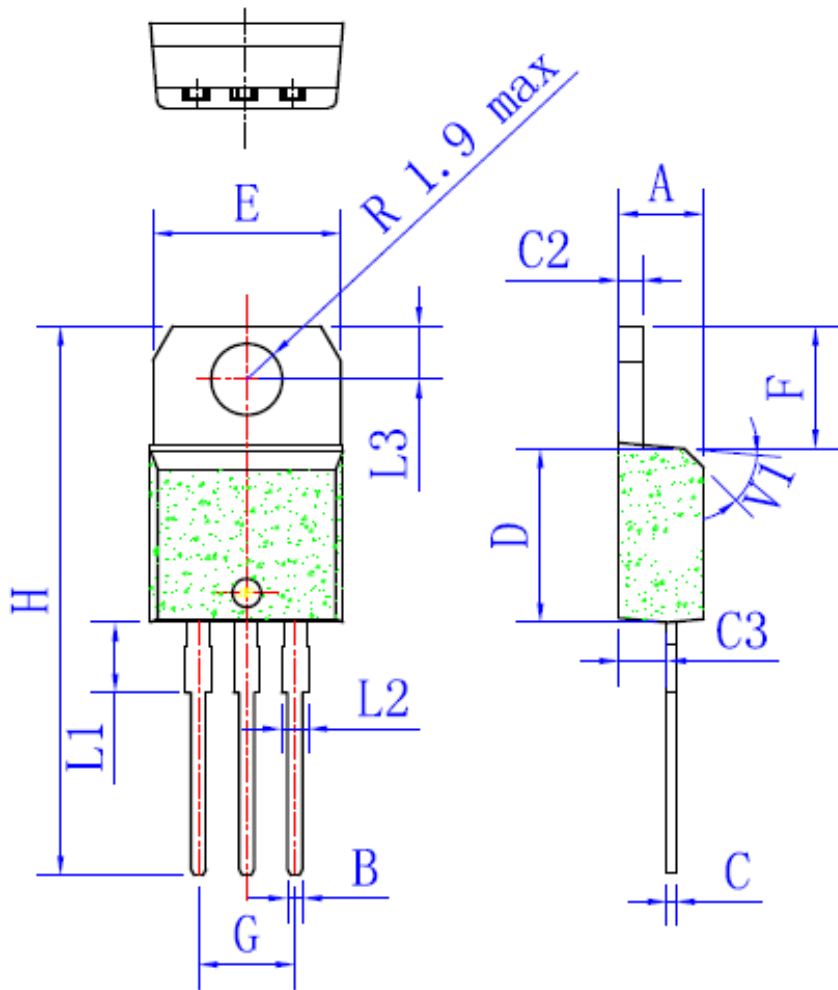
| Symbol | Test Conditions | | Value (MAX) | Unit |
|-------------------------------------|---|-------------------------|-------------|------|
| V _{TM} | I _{TM} = 24A, t _p = 380uS | T _j = 25 °C | 1.6 | V |
| I _{DRM} / I _{RRM} | V _D = V _{DRM} | T _j = 25 °C | 5 | uA |
| | V _R = V _R RM | T _j = 125 °C | 2 | mA |

THERMAL RESISTANCES

| Symbol | Parameter | | Value | Unit |
|-------------------------|------------------|---------|-------|------|
| R _{th} (j - c) | Junction to case | TO-220B | 2.8 | °C/W |

PACKAGE MECHANICAL DATA

TO-220B



| | Millimeters | | |
|----|-------------|------|------|
| | Min | Typ | Max |
| A | 4.4 | | 4.6 |
| B | 0.61 | | 0.88 |
| C | 0.46 | | 0.70 |
| C2 | 1.23 | | 1.32 |
| C3 | 2.4 | | 2.72 |
| D | 8.6 | | 9.7 |
| E | 9.8 | | 10.4 |
| F | 6.2 | | 6.6 |
| G | 4.8 | | 5.4 |
| H | 28 | | 29.8 |
| L1 | | 3.75 | |
| L2 | 1.14 | | 1.7 |
| L3 | 2.65 | | 2.95 |
| V | | 40° | |

FIG.1: Maximum average power dissipation versus average on-state current

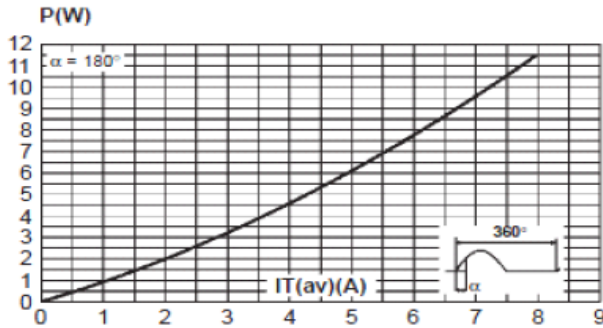


FIG. 2 : Average and D.C. on-state current versus case temperature.

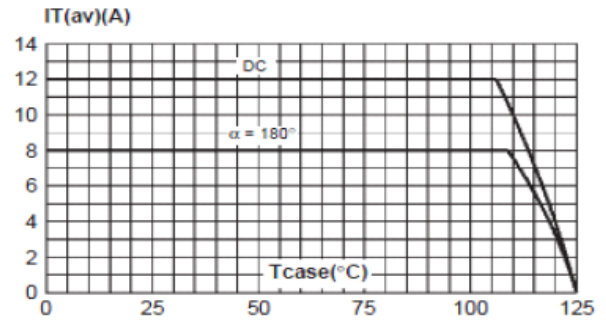


FIG. 3 : Relative variation of thermal impedance junction to case versus pulse duration

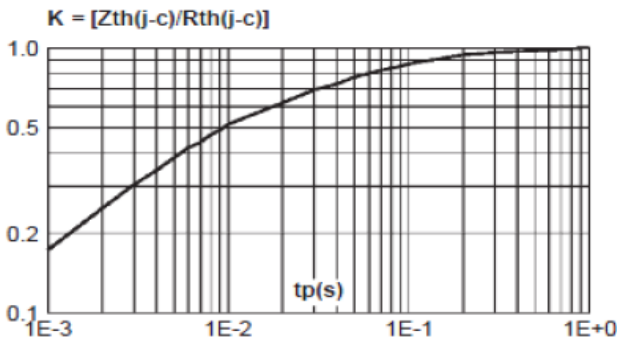


FIG. 4 : Relative variation of gate trigger current, holding current and latching current versus junction temperature

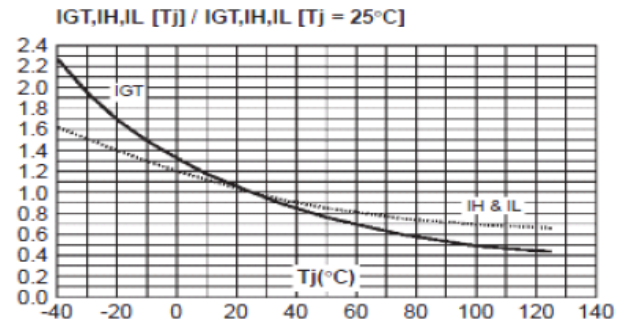


FIG. 5 : On-state characteristics (maximum values).

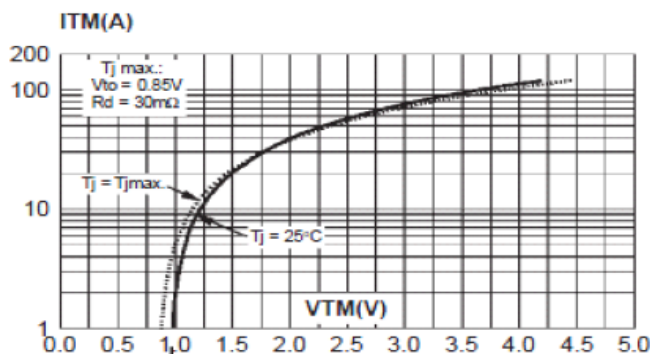


FIG.6: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $tp < 10$ ms, and corresponding value of I^2t

