



24A, 800V Stealth™ Diode

The ISL9R2480G2 is a Stealth™ diode optimized for low loss performance in high frequency applications. The Stealth family exhibits low reverse recovery current (I_{RRM}) and exceptionally soft recovery under typical operating conditions.

This device is intended for use as a free wheeling or boost diode in power supplies and other power switching applications. The low I_{RRM} and short t_a phase reduce loss in switching transistors. The soft recovery minimizes ringing, expanding the range of conditions under which the diode may be operated without the use of additional snubber circuitry.

Formerly developmental type TA49392.

Ordering Information

| PART NUMBER | PACKAGE | BRAND |
|-------------|---------|---------|
| ISL9R2480G2 | TO-247 | R2480G2 |

NOTE: When ordering, use the entire part number.

Symbol



Features

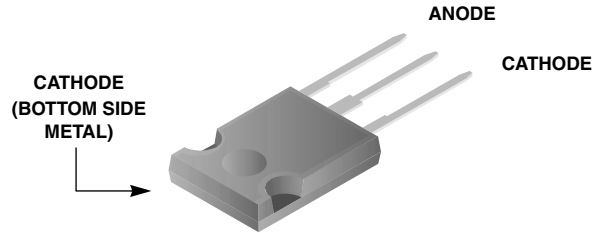
- Soft Recovery $t_b / t_a > 1.2$
- Fast Recovery $t_{rr} < 35ns$
- Operating Temperature $175^{\circ}C$
- Reverse Voltage $.800V$

Applications

- Switch Mode Power Supplies
- PFC Boost Diode
- UPS Free Wheeling Diode
- Motor Drive FWD
- SMPS FWD
- Snubber Diode

Packaging

JEDEC STYLE 2 LEAD TO-247



Absolute Maximum Ratings $T_C = 25^{\circ}C$, Unless Otherwise Specified

| | | | UNITS |
|---|----------------|------------|-------------|
| Peak Repetitive Reverse Voltage | V_{RRM} | 800 | V |
| Working Peak Reverse Voltage | V_{RWM} | 800 | V |
| DC Blocking Voltage | V_R | 800 | V |
| Average Rectified Forward Current | $I_{F(AV)}$ | 24 | A |
| Repetitive Peak Surge Current (Square Wave, 20kHz) | I_{FRM} | 48 | A |
| Nonrepetitive Peak Surge Current (Halfwave 1 Phase 60Hz) | I_{FSM} | 240 | A |
| Maximum Power Dissipation | P_D | 160 | W |
| Operating and Storage Temperature | T_{STG}, T_J | -55 to 175 | $^{\circ}C$ |

ISL9R2480G2

Electrical Specifications $T_C = 25^\circ\text{C}$, Unless Otherwise Specified

| SYMBOL | TEST CONDITION | MIN | TYP | MAX | UNITS |
|-----------------|---|-----|------|------|---------------------------|
| BV | $I_R = 1\text{mA}$ | 800 | - | - | V |
| V_F | $I_F = 24\text{A}$ | - | 2.5 | 3.0 | V |
| | $I_F = 24\text{A}, T_C = 125^\circ\text{C}$ | - | 2.0 | 2.5 | V |
| I_R | $V_R = 600\text{V}$ | - | - | 100 | μA |
| | $V_R = 600\text{V}, T_C = 125^\circ\text{C}$ | - | - | 1.0 | mA |
| t_{rr} | $I_F = 1\text{A}, di_F/dt = 100\text{A}/\mu\text{s}, V_R = 30\text{V}$ | - | 27 | 35 | ns |
| | $I_F = 24\text{A}, di_F/dt = 100\text{A}/\mu\text{s}, V_R = 30\text{V}$ | - | 34 | 45 | ns |
| t_{rr} | $I_F = 24\text{A}, di_F/dt = 200\text{A}/\mu\text{s}, V_R = 520\text{V}, T_C = 25^\circ\text{C}$ | - | 35 | - | ns |
| I_{RRM} | | - | 4.2 | - | A |
| Q_{RR} | | - | 75 | - | nC |
| t_{rr} | $I_F = 24\text{A}, di_F/dt = 200\text{A}/\mu\text{s}, V_R = 520\text{V}, T_C = 125^\circ\text{C}$ | - | 145 | - | ns |
| S | | - | 3.8 | - | |
| I_{RRM} | | - | 5.0 | - | A |
| Q_{RR} | | - | 500 | - | nC |
| t_{rr} | $I_F = 24\text{A}, di_F/dt = 900\text{A}/\mu\text{s}, V_R = 520\text{V}, T_C = 125^\circ\text{C}$ | - | 72 | - | ns |
| S | | - | 1.96 | - | |
| I_{RRM} | | - | 17.3 | - | A |
| Q_{RR} | | - | 710 | - | nC |
| di_M/dt | | - | 600 | - | $\text{A}/\mu\text{s}$ |
| C_J | $V_R = 10\text{V}, I_F = 0\text{A}$ | - | 95 | - | pF |
| $R_{\theta JC}$ | | - | - | 0.92 | $^\circ\text{C}/\text{W}$ |

DEFINITIONS

BV = Breakdown Voltage.

V_F = Instantaneous forward voltage (pw = 300 μs , D = 2%).

I_R = Instantaneous reverse current.

t_{rr} = Reverse recovery time ($t_a + t_b$).

I_{RRM} = Maximum reverse recovery current.

Q_{RR} = Reverse recovery charge.

S = Softness factor (t_b / t_a).

di_M/dt = Maximum di/dt during t_b .

C_J = Junction Capacitance.

$R_{\theta JC}$ = Thermal resistance junction to case.

pw = pulse width.

D = Duty cycle

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