TAIWAN SEMICONDUCTOR

The Smartest Choice

# SF1601PT - SF1608PT

16.0AMPS. Glass Passivated Super Fast Rectifiers

**TO-3P/TO-247AD**

Pb-Free

RoHS COMPLIANT

## Features

- ✧ UL Recognized File # E-326243
- ✧ Dual rectifier construction, positive center-tap
- ✧ Plastic package has Underwriters Laboratory Flammability Classifications 94V-0
- ✧ Glass passivated chip junctions
- ✧ Superfast recovery time, high voltage
- ✧ Low forward voltage, high current capability
- ✧ Low thermal resistance
- ✧ Low power loss, high efficency
- ✧ High temperature soldering guaranteed: 260°C / 10 seconds
- ✧ Green compound with suffix "G" on packing code & prefix "G" on datecode.

## Mechanical Data

- ✧ Cases: JEDEC TO-3P/TO-247AD molded plastic
- ✧ Terminals: Pure tin plated, lead free, solderable per MIL-STD-750, Method 2026
- ✧ Polarity: As marked
- ✧ Mounting position: Any
- ✧ Weight: 5.6 grams

## Ordering Information (example)

| Part No. | Package | Packing | Packing code | Packing code (Green) |
|---|---|---|---|---|
| SF1601PT | TO-3P | 30 / TUBE | C0 | C0G |

## Maximum Ratings and Electrical Characteristics

Rating at 25 ℃ ambient temperature unless otherwise specified.

| Parameter | Symbol | SF 1601 PT | SF 1602 PT | SF 1603 PT | SF 1604 PT | SF 1605 PT | SF 1606 PT | SF 1607 PT | SF 1608 PT | Units |
|---|---|---|---|---|---|---|---|---|---|---|
| Maximum Recurrent Peak Reverse Voltage | $V_{RRM}$ | 50 | 100 | 150 | 200 | 300 | 400 | 500 | 600 | V |
| Maximum RMS Voltage | $V_{RMS}$ | 35 | 70 | 105 | 140 | 210 | 280 | 350 | 420 | V |
| Maximum DC Blocking Voltage | $V_{DC}$ | 50 | 100 | 150 | 200 | 300 | 400 | 500 | 600 | V |
| Maximum Average Forward Rectified Current | $I_{F(AV)}$ | 16 | | | | | | | | A |
| Peak Forward Surge Current, 8.3 ms Single Half Sine-wave Superimposed on Rated Load (JEDEC method) | $I_{FSM}$ | 150 | | | | | | | | A |
| Maximum Instantaneous Forward Voltage (Note 1) @8 A | $V_F$ | 0.95 | | | | 1.3 | | 1.7 | | V |
| Maximum DC Reverse Current @ $T_A$=25 ℃ | $I_R$ | 10 | | | | | | | | uA |
| at Rated DC Blocking Voltage @ $T_A$=125 ℃ | | 500 | | | | | | | | uA |
| Maximum Reverse Recovery Time (Note 2) | Trr | 35 | | | | | | | | nS |
| Typical Junction Capacitance (Note 3) | Cj | 85 | | | | | | | | pF |
| Typical Thermal Resistance | $R_{\theta JC}$ | 2 | | | | | | | | °C/W |
| Operating Junction Temperature Range | $T_J$ | - 55 to + 150 | | | | | | | | °C |
| Storage Temperature Range | $T_{STG}$ | - 55 to + 150 | | | | | | | | °C |

Note 1: Pulse Test with PW=300 usec, 1% Duty Cycle

Note 2: Measured at 1 MHz and Applied Reverse Voltage of 4.0V D.C.

Note 3: Reverse Recovery Test Conditions: $I_F$=0.5A, $I_R$=1.0A, $I_{RR}$=0.25A.

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# RATINGS AND CHARACTERISTIC CURVES (SF1601PT THRU SF1608PT)

FIG.1- MAXIMUM FORWARD CURRENT DERATING CURVE

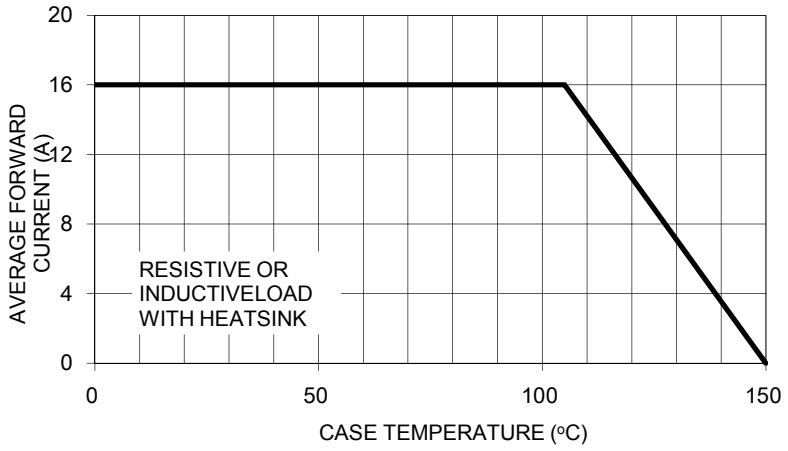



FIG. 2- TYPICAL INSTANEOUS FORWARD CHARACTERISTICS PER LEG

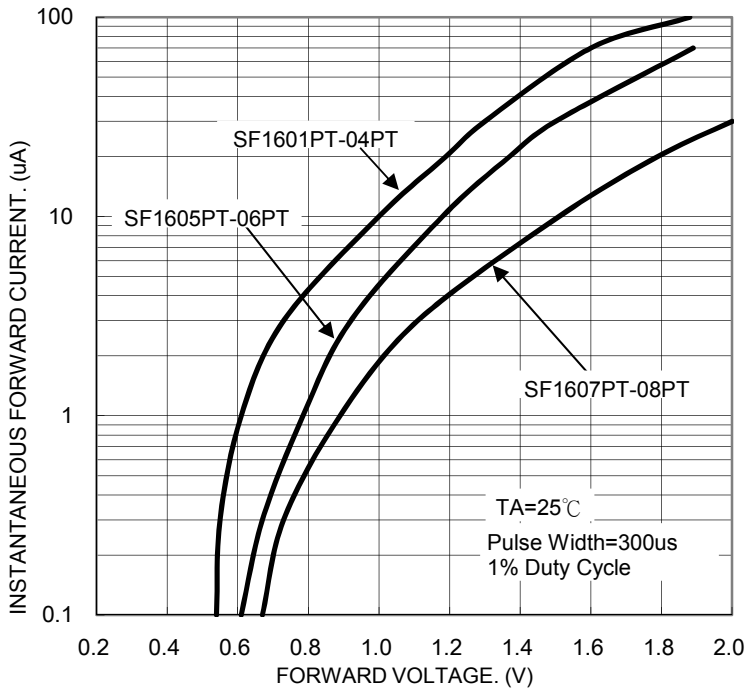



FIG. 3- MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT PER LEG

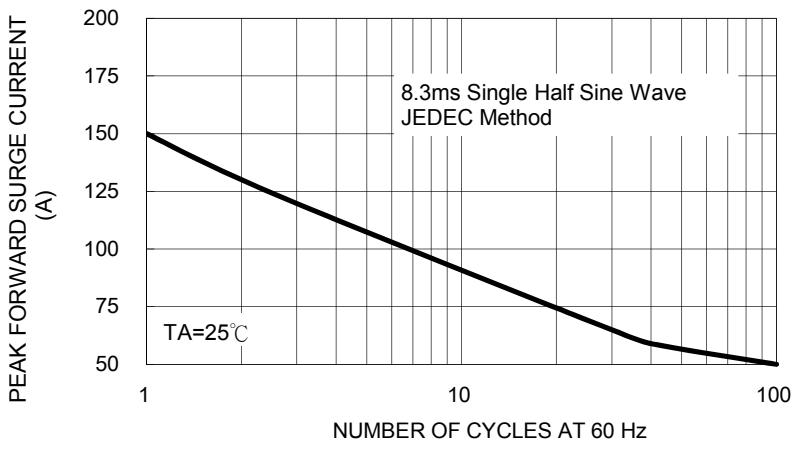



FIG. 5- TYPICAL REVERSE CHARACTERISTICS PER LEG

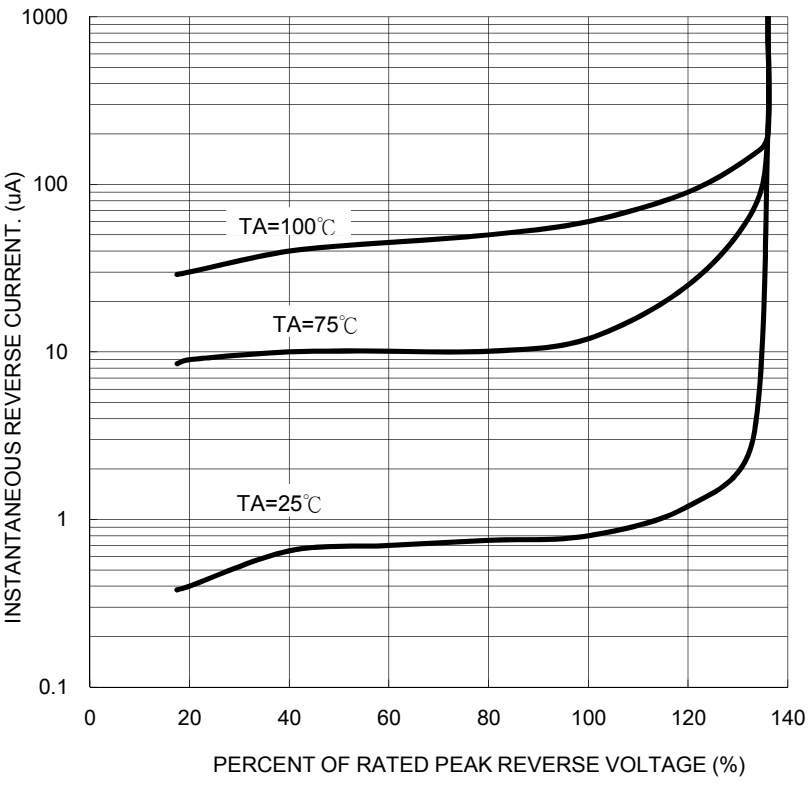



FIG. 4- TYPICAL JUNCTION CAPACITANCE PER LEG

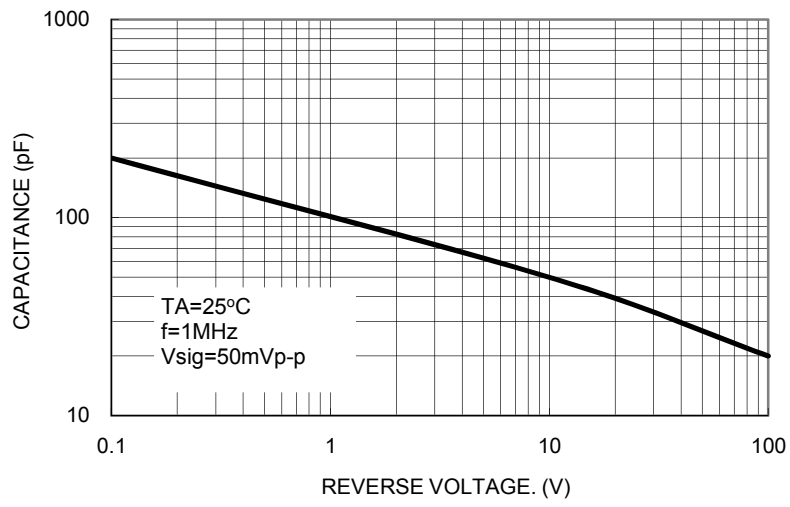
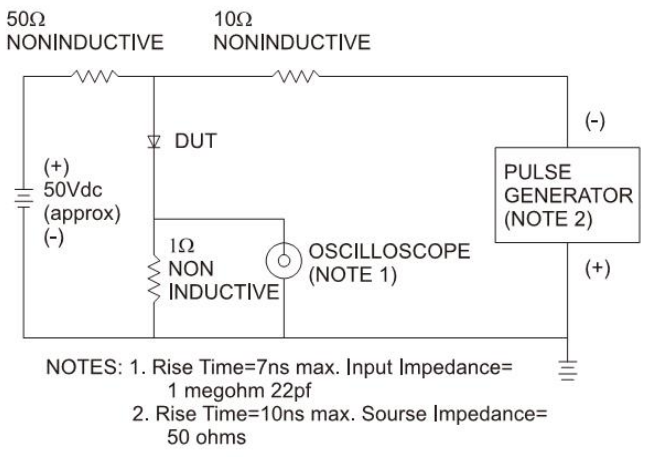
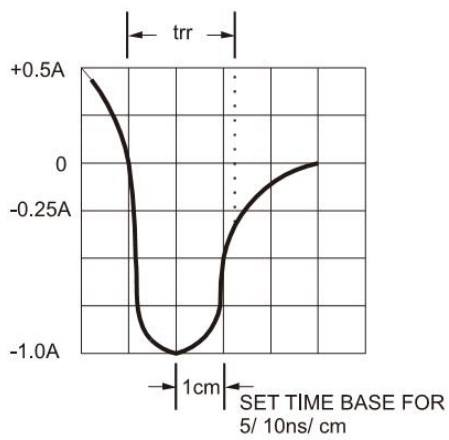



FIG.6- REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM



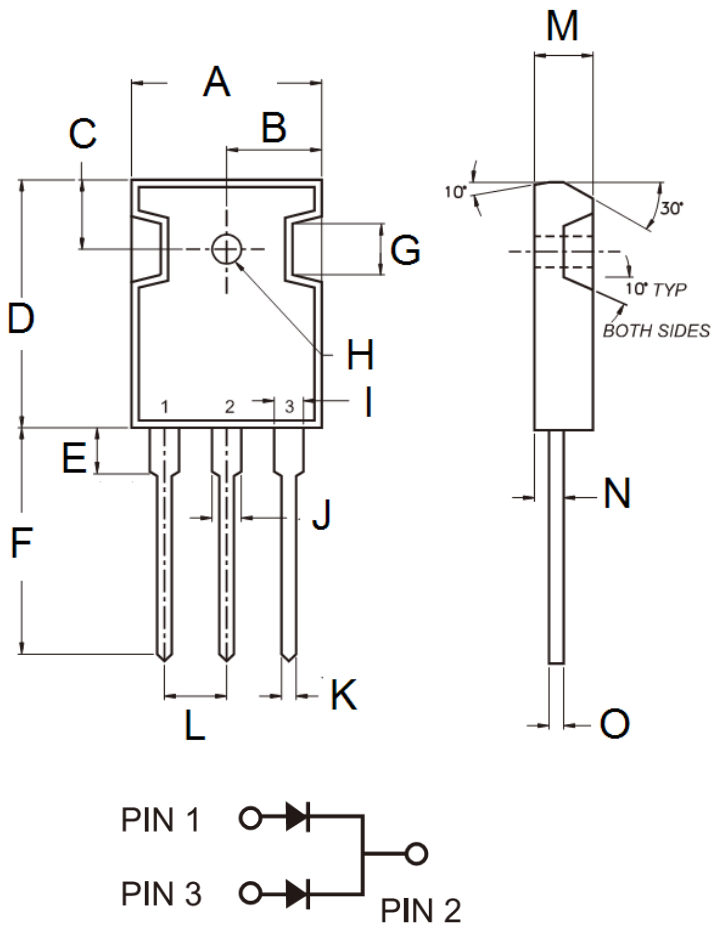



## Ordering information

| Part No. | Package | BULK Packing | Packing code | Packing code (Green) |
|---|---|---|---|---|
| SP160xPT | TO-3P | 30 / TUBE | C0 | C0G |

Note: "x" is Device Code from "1" thru "8".

## Dimensions




| DIM. | Unit(mm) | | Unit(inch) | |
|---|---|---|---|---|
| | Min | Max | Min | Max |
| A | 15.90 | 16.40 | 0.626 | 0.646 |
| B | 7.90 | 8.20 | 0.311 | 0.323 |
| C | 5.70 | 6.20 | 0.224 | 0.244 |
| D | 20.80 | 21.30 | 0.819 | 0.839 |
| E | 3.50 | 4.10 | 0.138 | 0.161 |
| F | 19.70 | 20.20 | 0.776 | 0.795 |
| G | - | 4.30 | - | 0.169 |
| H | 2.90 | 3.40 | 0.114 | 0.134 |
| I | 1.93 | 2.18 | 0.076 | 0.086 |
| J | 2.97 | 3.22 | 0.117 | 0.127 |
| K | 1.12 | 1.22 | 0.044 | 0.048 |
| L | 5.20 | 5.70 | 0.205 | 0.224 |
| M | 4.90 | 5.16 | 0.193 | 0.203 |
| N | 2.70 | 3.00 | 0.106 | 0.118 |
| O | 0.51 | 0.76 | 0.020 | 0.030 |

## Marking Diagram


P/N = Specific Device Code
G = Green Compound
YWW = Date Code
F = Factory Code