



Solid State Devices, Inc.

14701 Firestone Blvd * La Mirada, Ca 90638
 Phone: (562) 404-4474 * Fax: (562) 404-1773
 ssdi@ssdi-power.com * www.ssdi-power.com

SFF25P20 Series

**25 AMP / 200 Volts
 150 mΩ typical
 P-Channel MOSFET**

DESIGNER'S DATA SHEET

Part Number/Ordering Information ^{1/}
SFF25P20

Screening ^{2/}
 — = Not Screened
 TX = TX Level
 TXV = TXV
 S = S Level

Package ^{2/}
 S2I = SMD2 Isolated
 M = TO-254

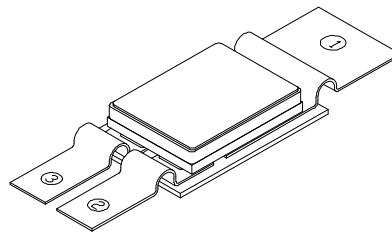
- Features:**
- polySi gate cell structure
 - Low ON-resistance
 - UIS (unclamped inductive switching) rated
 - Hermetically Sealed, Isolated Package
 - Low package inductance
 - Stress relief provided by flexible leads – several options available
 - Improved ($R_{DS(ON)}$ Q_G) figure of merit
 - TX, TXV, S-Level screening available

| Maximum Ratings | | Symbol | Value | Units |
|---|-------------------------|----------------------|----------------------|--------------|
| Drain - Source Voltage | | V_{DSS} | -200 | V |
| Gate – Source Voltage | Continuous transient | V_{GS} | ± 20 ± 30 | V |
| Max. Continuous Drain Current | @ $T_c = 25^\circ C$ | I_{D1} | 25 | A |
| Max. Instantaneous Drain Current (Tj limited) | @ $T_c = 25^\circ C$ | I_{D3} | 95 | A |
| Max. Avalanche current | | I_{AR} | 25 | A |
| Repetitive Avalanche Energy | | E_{AR} | 30 | mJ |
| Total Power Dissipation | @ $T_c = 25^\circ C$ | P_D | 250 | W |
| Operating & Storage Temperature | | T_{OP} & T_{STG} | -55 to +150 | $^\circ C$ |
| Maximum Thermal Resistance | Junction to Case | $R_{\theta JC}$ | 0.83 0.6 typical | $^\circ C/W$ |

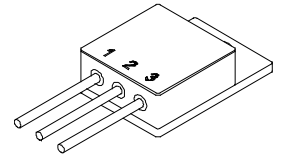
NOTES:

- ^{1/} For ordering information, price, operating curves, and availability- Contact factory.
^{2/} Screening based on MIL-PRF-19500. Screening flows available on request.
^{3/} Unless otherwise specified, all electrical characteristics @25°C.

SMD 2 Isolated



TO-254



NOTE: SEE DASH# DEFINITION TABLE FOR AVAILABLE LEAD FORMING CONFIGURATION



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SFF25P20

series

| Electrical Characteristics (@25°C, unless otherwise specified) | Symbol | Min | Typ | Max | Units |
|--|-------------------------------------|-----|--------------------|----------|----------|
| Drain to Source Breakdown Voltage $V_{GS} = 0V, I_D = 250\mu A$ | BV_{DSS} | 200 | — | — | V |
| Drain to Source On State Resistance $V_{GS} = 10V, I_D = 12A, T_j = 25^\circ C$ $V_{GS} = 10V, I_D = 25A, T_j = 25^\circ C$ | $R_{DS(on)}$ | — | 125 150 | 150 — | mΩ |
| Gate Threshold Voltage $V_{DS} = V_{GS}, I_D = 250\mu A$ | $V_{GS(th)}$ | 3.0 | — | 5.0 | V |
| Gate to Source Leakage $V_{GS} = \pm 20V$ | I_{GSS} | — | — | ±100 | nA |
| Zero Gate Voltage Drain Current $V_{DS} = 160V, V_{GS} = 0V, T_j = 25^\circ C$ $V_{DS} = 160V, V_{GS} = 0V, T_j = 125^\circ C$ | I_{DSS} | — | — | 25 1 | μA mA |
| Forward Transconductance $V_{DS} = 10V, I_D = 24A, T_j = 25^\circ C$ | g_{fs} | 5 | 12 | — | Mho |
| Total Gate Charge $V_{GS} = 10V$ | Q_g | — | 150 | — | nC |
| Gate to Source Charge $V_{DS} = 100V$ | Q_{gs} | — | 35 | — | |
| Gate to Drain Charge $I_D = 12A$ | Q_{gd} | — | 70 | — | |
| Turn on Delay Time $V_{GS} = 10V$ | $t_{d(on)}$ | — | 35 | — | nsec |
| Rise Time $V_{DS} = 100V$ | t_r | — | 30 | — | |
| Turn off Delay Time $I_D = 12A$ | $t_{d(off)}$ | — | 70 | — | |
| Fall Time $R_G = 4.7\Omega$ | t_f | — | 30 | — | |
| Diode Forward Voltage $I_F = 25A, V_{GS} = 0V$ | V_{SD} | — | 2.0 | 3.0 | V |
| Diode Reverse Recovery Time Peak Reverse Recovery Current Reverse Recovery Charge $I_F = 24A, di/dt = 100A/\mu sec$ | t_{rr} | — | 250 | — | nsec |
| Input Capacitance Output Capacitance Reverse Transfer Capacitance $V_{GS} = 0V$ $V_{DS} = 25V$ $f = 1 MHz$ | C_{iss} C_{oss} C_{rss} | — | 4200 850 350 | — | pF |

NOTES: Pulse Test: Pulse Width = 300μsec, Duty Cycle = 2%.

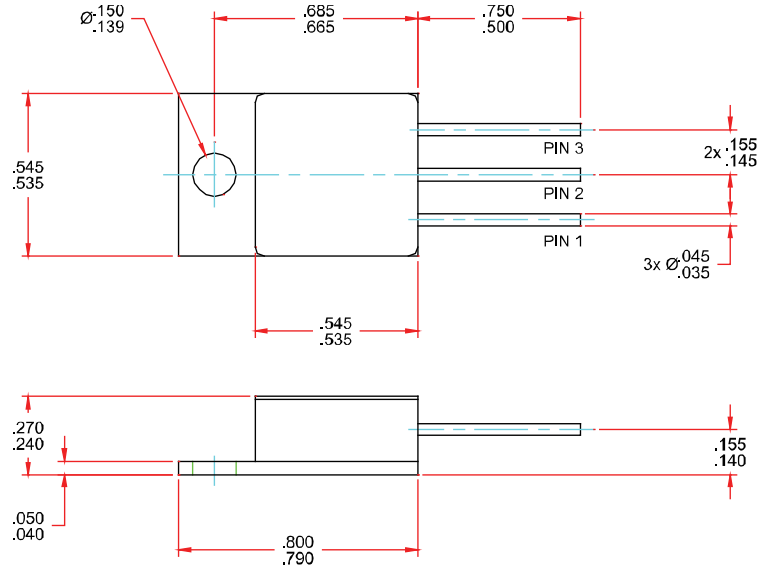


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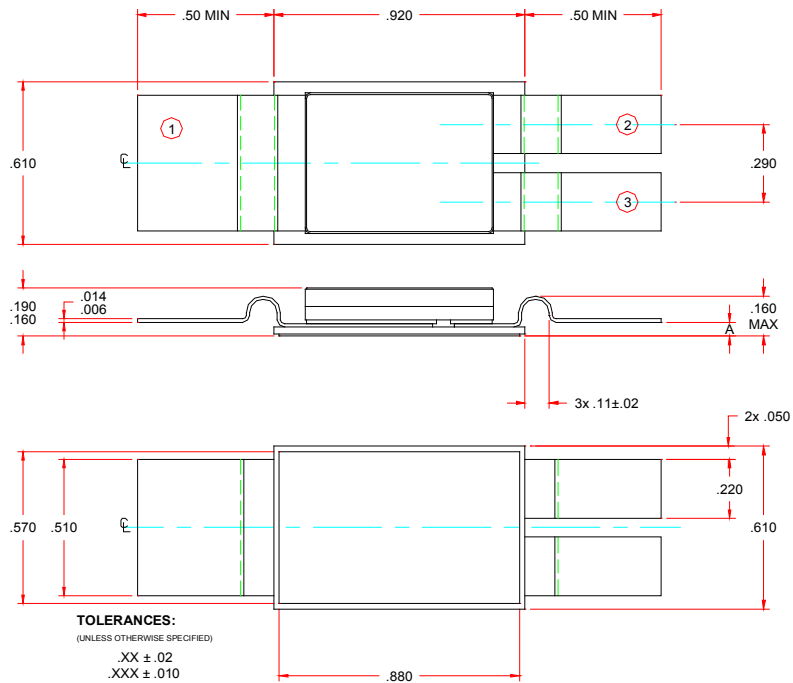
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SFF25P20 series

TO-254 (M)



SMD2 Isolated



| LEAD FORMING CONFIGURATIONS | | | |
|-----------------------------|--------|--------|--------|
| SMD1I dash# | -01 | -02 | -03 |
| A | 0.062" | 0.000" | 0.097" |

| PIN ASSIGNMENT (Standard) | | | |
|---------------------------|-------|--------|-------|
| Package | Drain | Source | Gate |
| SMD1I | Pin 1 | Pin 2 | Pin 3 |

NOTE: All specifications are subject to change without notification. SCD's for these devices should be reviewed by SSDI prior to release.

DATA SHEET #: FT0009B

DOC