



**Solid State Devices, Inc.**

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 Phone: (562) 404-7855 \* Fax: (562) 404-1773  
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**DESIGNER'S DATA SHEET**

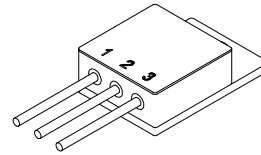
**Features:**

- Rugged Construction with Poly Silicon Gate
- Low RDS(on) and High Transconductance
- Excellent High Temperature Stability
- Very Fast Switching Speed
- Fast Recovery and Superior dv/dt Performance
- Increased Reverse Energy Capability
- Low Input and Transfer Capacitance for Easy Paralleling
- Hermetically Sealed
- TX, TXV, and Space Level Screening Available. Consult Factory.
- Replaces RFG60P05E Types

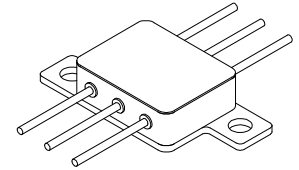
**SFF60P05M**  
**SFF60P05Z**

**-60 AMP/-50 Volts**  
**33 mW**  
**P-Channel**  
**POWER MOSFET**

**TO-254 (M)**



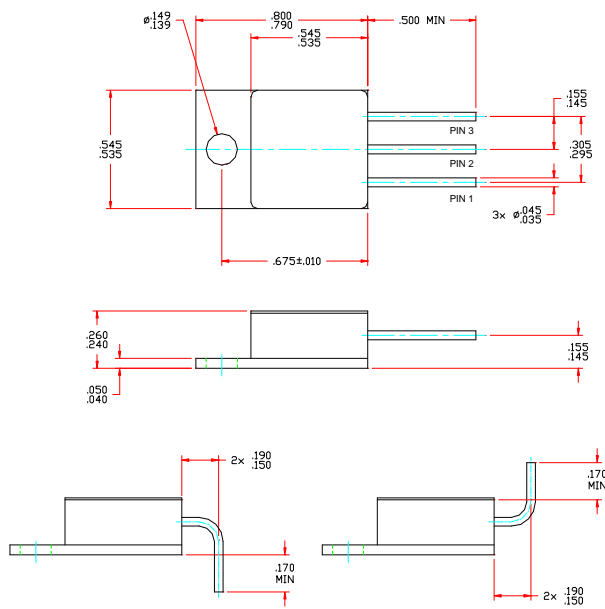
**TO-254Z (Z)**



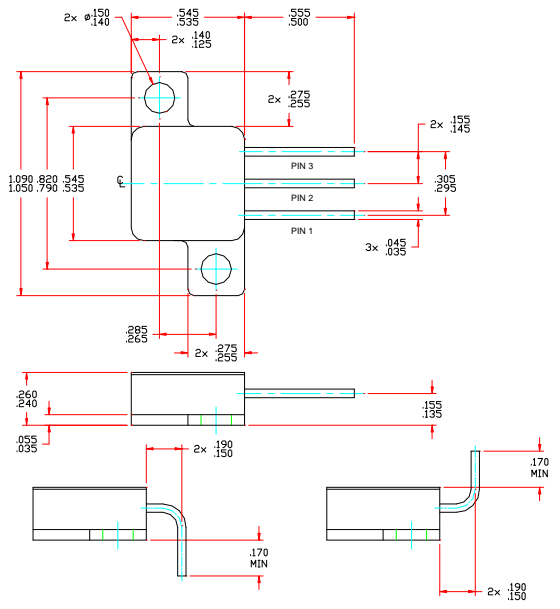
Maximum Ratings	Symbol	Value	Units
Drain - Source Voltage	$V_{DS}$	-50	V
Gate - Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current	$I_D$	-60	A
Operating & Storage Temperature	$T_{OP} \& T_{STG}$	-55 to +150	$^{\circ}C$
Thermal Resistance, Junction to Case	$R_{qJC}$	0.8	$^{\circ}C/W$
Total Device Power Dissipation	$P_D$	156 118	Watts

$T_C = 25^{\circ}C$   
 $T_C = -55^{\circ}C$

**PACKAGE OUTLINE: TO-254 (M)**



**PACKAGE OUTLINE: TO-254Z (Z)**



Available with Glass or Ceramic Seals. Contact Factory for Details.

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

**DATA SHEET #: FP0045D**

**DOC**



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**SFF60P05M  
SFF60P05Z**

Electrical Characteristics <sup>4/</sup>		Symbol	Min	Typ	Max	Units
<b>Drain to Source Breakdown Voltage</b> ( $V_{GS} = 0V, I_D = 250\mu A$ )		$BV_{DSS}$	-50	—	—	Volts
<b>Drain to Source On State Resistance</b> ( $V_{GS} = -10V, I_D = 60A$ )		$R_{DS(on)}$	—	—	0.033	W
<b>On State Drain Current</b> ( $V_{DS} > I_{D(on)} \times R_{DS(on)}$ Max, $V_{GS} = -10V$ )		$R_{DS(on)}$	—	—	—	Amps
<b>Gate Threshold Voltage</b> ( $V_{DS} = V_{GS}, I_D = -250\mu A$ )		$V_{GS(th)}$	-2.0	—	-4.0	Volts
<b>Forward Transconductance</b> ( $V_{DS} > I_{D(on)} \times R_{DS(on)}$ Max, $I_{Ds} = 60\%$ of Rated $I_D$ )		$g_{fs}$	—	—	—	S
<b>Zero Gate Voltage Drain Current</b> ( $V_{DS} = \text{Max Rated Voltage}, V_{GS} = 0V$ ) ( $V_{DS} = 80\%$ Rated $V_{DS}, V_{GS} = 0V$ )	$T_A = 25^\circ C$ $T_A = 125^\circ C$	$I_{DSS}$	— —	— —	1 50	mA
<b>Gate to Source Leakage (For Gate to Source Leakage)</b>	At Rated $V_{GS}$	$I_{GSS}$	— —	— —	-100 100	mA
<b>Total Gate Charge</b> <b>Gate to Source Charge</b> <b>Gate to Drain Charge</b>	$V_{GS} = -10V$ $V_{DD} = 40V$ $I_D = 60A$ $R_L = 0.67\Omega$	$Q_g$ $Q_{gs}$ $Q_{gd}$	— — —	— — —	450 225 15	nC
<b>Turn on Delay Time</b> <b>Rise Time</b> <b>Turn off Delay Time</b> <b>Fall Time</b>	$V_{DD} = 50\%$ Rated $V_{DS}$ 50% Rated $I_D$ $I_{G1} = I_{G2} = 2A$ $R_L = 0.83\Omega$ $V_{GS(clamp)} = -10V/+0.6V$	$t_{(on)}$ $t_{d(on)}$ $t_r$ $t_{(off)}$ $t_{d(off)}$ $t_f$	— — — — — —	— 20 70 — 65 20	125 — — 125 — —	ns
<b>Diode Forward Voltage</b>	$I_S = \text{Rated } I_D$ $V_{GS} = 0V$ $T_J = 25^\circ C$	$V_{SD}$	—	—	-1.9	Volts
<b>Diode Reverse Recovery Time</b>	$I_F = 10A$ $di/dt = 100A/\mu sec$	$t_{rr}$ $Q_{rr}$	— —	140 —	200 —	ns mC
<b>Input Capacitance</b> <b>Output Capacitance</b> <b>Reverse Transfer Capacitance</b>	$V_{GS} = 0V$ $V_{DS} = -25V$ $f = 1 \text{ MHz}$	$C_{iss}$ $C_{oss}$ $C_{rss}$	— — —	6000 1800 500	— — —	pF



**Available Part Numbers:**  
**SFF60P05M, SFF60P05MUB, SFF60P05MDB;**  
**SFF60P05Z, SFF60P05ZUB, SFF60P05ZDB**

PIN ASSIGNMENT (Standard)			
Package	Drain	Source	Gate
TO-254 (M)	Pin 1	Pin 2	Pin 3
TO-254Z (Z)	Pin 1	Pin 2	Pin 3