



Solid State Devices, Inc.

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SFF9250M SFF9250Z

DESIGNER'S DATA SHEET

Part Number / Ordering Information ^{1/}

SFF9250

Screening ^{2/}

___ = Not Screened
TX = TX Level
TXV = TXV Level
S = S Level

Lead Bend Options

___ = Straight Leads
UB = Up Bend
DB = Down Bend

Package

M = TO-254
Z = TO-254Z

**-22 AMP, -200 Volts, 0.25 Ω
P-Channel Power MOSFET**

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, S-Level Screening Available ^{2/}
- Replacement for IRF9240 Types

Maximum Ratings ^{3/}	Symbol	Value	Unit
Drain to Source Voltage	V _{DS}	-200	V
Gate to Source Voltage	V _{GS}	±20	V
Continuous Drain Current	I _D	-22	A
Single Pulse Avalanche Energy	E _{AS}	1000	mJ
Operating & Storage Temperature	T _{OP} & T _{STG}	-55 to +150	°C
Thermal Resistance (Junction to Case)	R _{θJC}	1	°C/W
Total Power Dissipation @ T _C = 25°C @ T _C = 55°C	P _D	125 95	W

NOTES: *Pulsed per MIL-STD-750.

^{1/} For ordering information, price, 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.

TO-254 (M)

TO-254Z (Z)



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

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SFF9250M

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Electrical Characteristics ^{3/}		Symbol	Min	Typ	Max	Unit
Drain to Source Breakdown Voltage	$V_{GS} = 0\text{ V}, I_D = 1\text{ mA}$	BV_{DSS}	-200	-235	—	V
Drain to Source On State Resistance	$V_{GS} = -10\text{ V}, I_D = -14\text{ A}$	$R_{DS(on)}$	—	0.18	0.25	Ω
	$V_{GS} = -10\text{ V}, I_D = -22\text{ A}$		—	0.19	0.25	
	$V_{GS} = -10\text{ V}, I_D = -14\text{ A}, T_A = 125^\circ\text{C}$		—	0.33	0.55	
	$V_{GS} = -10\text{ V}, I_D = -22\text{ A}, T_A = 125^\circ\text{C}$		—	0.36	0.55	
On State Drain Current	$V_{DS} > I_{D(on)} \times R_{DS(on)} \text{ max}, V_{GS} = -10\text{ V}$	$I_{D(on)}$	-22	—	—	A
Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = -250\text{ }\mu\text{A}$	$V_{GS(th)}$	-2.0	-3.2	-4.0	V
	$V_{DS} = V_{GS}, I_D = -250\text{ }\mu\text{A}, T_A = 125^\circ\text{C}$		-1.0	-2.7	—	
	$V_{DS} = V_{GS}, I_D = -250\text{ }\mu\text{A}, T_A = -55^\circ\text{C}$		—	-3.4	-5.0	
Forward Transconductance	$V_{DS} = 15\text{ V}, I_{DS} = -14\text{ A}$	g_{fs}	4	6	—	S(O)
Zero Gate Voltage Drain Current	$V_{DS} = 200\text{ V}, V_{GS} = 0\text{ V}$	I_{DSS}	—	—	-100	μA
	$V_{DS} = 160\text{ V}, V_{GS} = 0\text{ V}$		—	—	-25	
	$V_{DS} = 200\text{ V}, V_{GS} = 0\text{ V}, T_A = 125^\circ\text{C}$		—	—	-1000	
	$V_{DS} = 160\text{ V}, V_{GS} = 0\text{ V}, T_A = 125^\circ\text{C}$		—	—	-250	
Gate to Source Leakage Forward	$V_{GS} = \pm 20\text{ V}$	I_{GSS}	—	—	± 100	nA
Gate to Source Leakage Reverse	$V_{GS} = \pm 20\text{ V}, T_A = 125^\circ\text{C}$		—	—	± 200	
Total Gate Charge	$V_{GS} = -10\text{ V}$	Q_g	—	102	110	nC
Gate to Source Charge	$V_{DS} = 100\text{ V}$	Q_{gs}	—	55	70	
Gate to Drain Charge	$I_D = -14\text{ A}$	Q_{gd}	—	38	50	
Turn on Delay Time	$V_{DD} = -100\text{ V}$	$t_{d(on)}$	—	40	50	nsec
Rise Time	$V_{GS} = -10\text{ V}$	t_r	—	72	85	
Turn off Delay Time	$I_D = -14\text{ A}$	$t_{d(off)}$	—	78	100	
Fall Time	$R_G = 9.1\text{ }\Omega$	t_f	—	30	50	
Diode Forward Voltage	$I_S = -22\text{ A}, V_{GS} = 0\text{ V}, T_J = 25^\circ\text{C}$	V_{SD}	—	-3.1	-5.0	V
Diode Reverse Recovery Time	$T_J = 25^\circ\text{C}, I_F = -10\text{ A},$	t_{rr}	—	280	440	nsec
Reverse Recovery Charge	$di/dt = 100\text{ A}/\mu\text{sec}$	Q_{rr}	—	3.7	—	
Input Capacitance	$V_{GS} = 0\text{ V}$	C_{iss}	—	2300	—	pF
Output Capacitance	$V_{DS} = -25\text{ V}$	C_{oss}	—	730	—	
Reverse Transfer Capacitance	$f = 1\text{ MHz}$	C_{rss}	—	1080	—	

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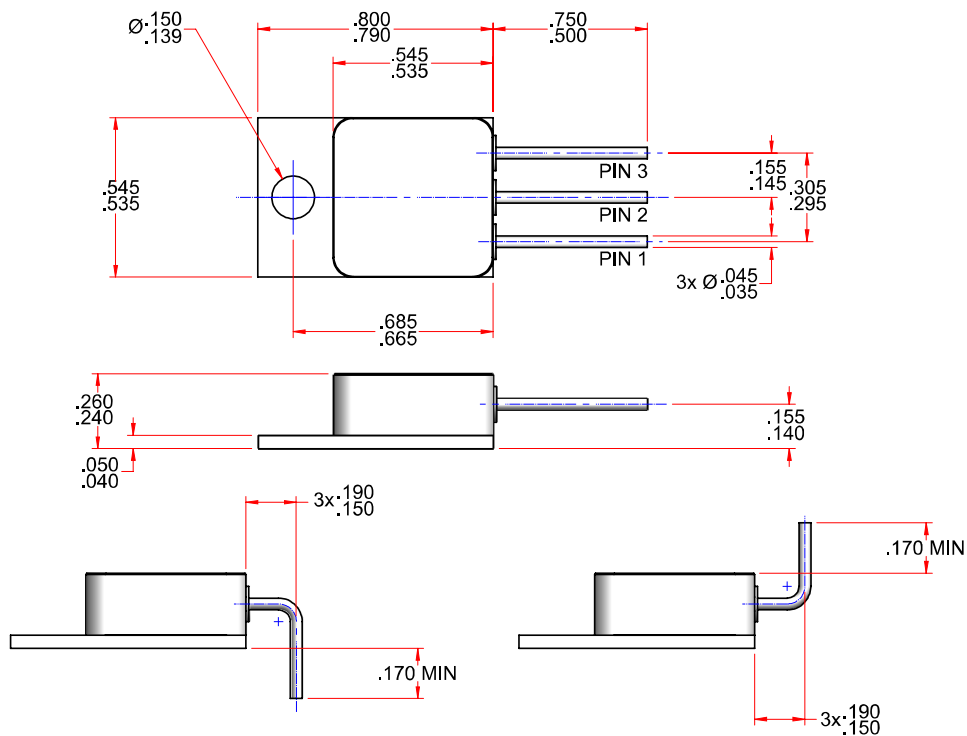
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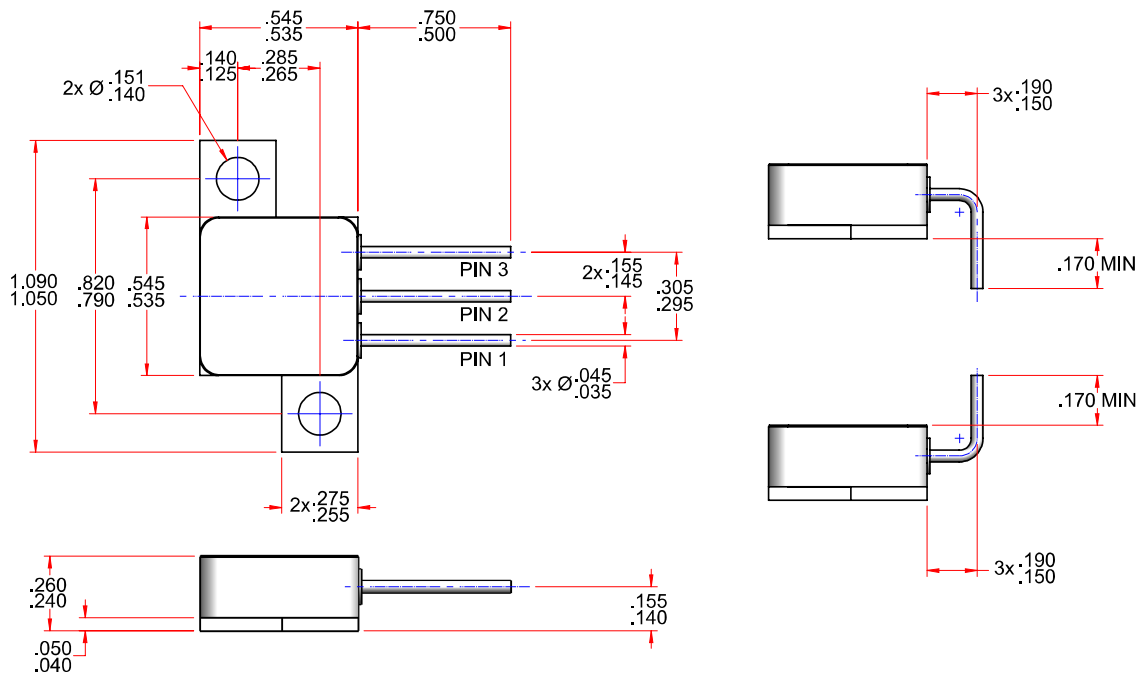
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SFF9250M SFF9250Z

CASE OUTLINE: TO-254 (M)



CASE OUTLINE: TO-254Z (Z)



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PIN ASSIGNMENT

Package	Drain	Source	Gate
TO-254 (M)	1	2	3
TO-254Z (Z)	1	2	3

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