Solid State Devices, Inc.
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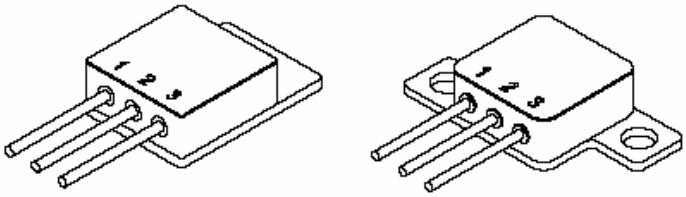
SFF75N08M
SFF75N08Z

DESIGNER'S DATA SHEET

TO-254 and TO-254Z

Note 1: maximum current limited by package configuration



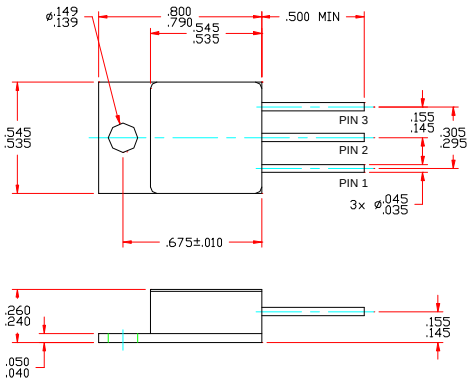
55 AMP (note 1) /75 Volts
8.5 mO
N-Channel Trench Gate MOSFET

Features:

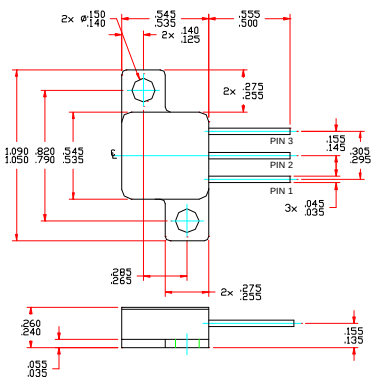
- Trench gate technology for high cell density
- Lowest ON-resistance in the industry
- Enhanced operating temperature range
- Hermetically Sealed, Isolated Package
- Low Total Gate Charge
- Fast Switching
- Enhanced replacement for IRF7MS2907
- TX, TXV, S-Level screening available
- Improved ($R_{DS(ON)}$ Q_G) figure of merit

Maximum Ratings		Symbol	Value	Units
Drain - Source Voltage		V_{DSS}	75	V
Gate – Source Voltage		V_{GS}	±20	V
Max. Continuous Drain Current (package limited)	@ T_C = 25ºC @ T_C = 125ºC	I_{D1} I_{D2}	55 (note 1) 55 (note 1)	A
Max. Instantaneous Drain Current (Tj limited)	@ T_C = 25ºC @ T_C = 125ºC	I_{D3} I_{D4}	175 75	A
Max. Avalanche current	@ L= 0.1 mH	I_{AR}	75	A
Repetitive Avalanche Energy	@ L= 0.1 mH	E_{AR}	280	mJ
Total Power Dissipation	@ T_C = 25ºC	P_D	210	W
Operating & Storage Temperature		T_{OP} & T_{STG}	-55 to +175	ºC
Maximum Thermal Resistance (Junction to Case)		$R_{\theta JC}$	0.7 (typ 0.55)	ºC/W

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.

DATA SHEET #: FT0021A

DOC

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SFF75N08M
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Electrical Characteristics [4/]		Symbol	Min	Typ	Max	Units
Drain to Source Breakdown Voltage	V_{GS} = 0V, I_D = 250µA	BV_{DSS}	75	—	—	V
Drain to Source On State Resistance	V_{GS} = 10V, I_D = 30A, Tj= 25°C	$R_{DS(on)}$	—	7.5	8.5	mO
	V_{GS} = 10V, I_D = 30A, Tj=125°C		—	10.0	—	
	V_{GS} = 10V, I_D = 30A, Tj= 175°C		—	12.5	—	
Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = 250µA	$V_{GS(th)}$	2.0	—	4.0	V
Gate to Source Leakage	V_{GS} = ±20V	I_{GSS}	—	—	±100	nA
Zero Gate Voltage Drain Current	V_{DS} = 60V, V_{GS} = 0V, T_j = 25°C	I_{DSS}	—	—	1	µA
	V_{DS} = 60V, V_{GS} = 0V, T_j = 125°C		—	—	50	µA
	V_{DS} = 60V, V_{GS} = 0V, T_j = 200°C		—	—	10	mA
Forward Transconductance	V_{DS} = 15V, I_D = 30A, T_j = 25°C	g_{fs}	25	—	—	Mho
Total Gate Charge	V_{GS} = 10V	Q_g	—	150	220	nC
Gate to Source Charge	V_{DS} = 35V	Q_{gs}	—	35	—	
Gate to Drain Charge	I_D = 110A	Q_{gd}	—	50	—	
Turn on Delay Time	V_{GS} = 10V	$t_{d(on)}$	—	25	50	nsec
Rise Time	V_{DS} = 35V	t_r	—	210	300	
Turn off Delay Time	I_D = 110A	$t_{d(off)}$	—	70	125	
Fall Time	R_G = 2.5O	t_f	—	170	275	
Diode Forward Voltage	I_F = 110A, V_{GS} = 0V	V_{SD}	—	1.1	1.5	V
Diode Reverse Recovery Time	I_F = 100A, di/dt = 100A/usec	t_{rr}	—	85	135	nsec
Peak Reverse Recovery Current		$I_{RM(rec)}$		4.5	7.5	A
Reverse Recovery Charge		Q_{rr}		0.16	0.35	µC
Input Capacitance	V_{GS} = 0V	C_{iss}	—	8000	—	pF
Output Capacitance	V_{DS} = 25V	C_{oss}	—	1000	—	
Reverse Transfer Capacitance	f = 1 MHz	C_{rss}	—	600	—	

NOTES:

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

1/ For Ordering Information, Price, and Availability Contact Factory.

2/ Screening per MIL-PRF-19500.

3/ For Package Outlines Contact Factory.

4/ Unless Otherwise Specified, All Electrical Characteristics @25°C.

Available Part Numbers:

Consult Factory

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

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