



Solid State Devices, Inc.

14830 Valley View Blvd * La Mirada, Ca 90638

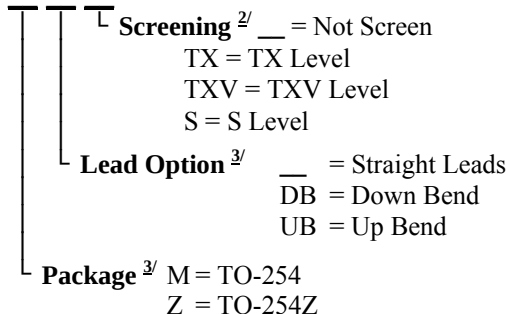
Phone: (562) 404-7855 * Fax: (562) 404-1773

ssdi@ssdi-power.com * www.ssdi-power.com

DESIGNER'S DATA SHEET

Part Number / Ordering Information ^{1/}

SFF450



SFF450M
SFF450Z

13 AMP / 500 Volts

0.4 Ω

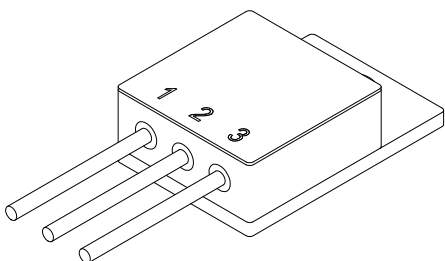
N-Channel POWER MOSFET

Features:

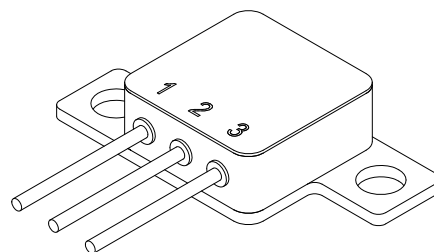
- Rugged Construction with Polysilicon Gate Cell
- Low $R_{DS(ON)}$ and High Transconductance
- Excellent High Temperature Stability
- Very Fast Switching Speed
- Fast Recovery and Superior dV/dt Performance
- Increased Reverse Energy Capability
- Low Input and Transfer Capacitance for Easy Paralleling
- Ceramic Seals Available for Improved Hermeticity
- Hermetically Sealed Surface Mount Power Package
- TX, TXV, Space Level Screening Available
- Replacement for IRFM450 Types

Maximum Ratings		Symbol	Value	Units
Drain – Source Voltage		V_{DS}	500	Volts
Gate – Source Voltage		V_{GS}	± 20	Volts
Continuous Collector Current		I_D	13	Amps
Operating & Storage Temperature		Top & Tstg	-55 to +150	$^{\circ}C$
Maximum Thermal Resistance Junction to Case		$R_{\theta JC}$	1	$^{\circ}C/W$
Total Device Dissipation	$T_C = 25^{\circ}C$ $T_C = 55^{\circ}C$	P_D	125 95	W

TO-254 (M)



TO-254Z (Z)



For Pin Out Configuration and Optional Lead Bend, Se Page 3.

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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SFF450M

SFF450Z

Electrical Characteristics @ T _J = 25°C (Unless Otherwise Specified)		Symbol	Min	Typ	Max	Units
Drain to Source Breakdown Voltage (V _{GS} =0 V, I _D =250 μA)		BV _{DSS}	500	—	—	Volts
Drain to Source On State Resistance (V _{GS} =10 V, I _D = 7.2 A)		R _{DS(on)}	—	0.35	0.40	Ω
On State Drain Current (V _{DS} >I _{D(on)} X R _{DS(on)} Max, V _{GS} =10 V)		I _{D(on)}	13	—	—	A
Gate Threshold Voltage (V _{DS} =V _{GS} , I _D = 250 μA)		V _{GS(th)}	2.0	—	4.0	V
Forward Transconductance (V _{DS} ≥ 50 V, I _{DS} = 7.2 A)		g _{fs}	8.7	131	—	mho
Zero Gate Voltage Drain Current (V _{DS} =max rated voltage, V _{GS} =0 V) (V _{DS} =80% rated V _{DS} , V _{GS} =0 V, T _A =125°C)		I _{DSS}	— —	— —	250 1000	μA
Gate to Source Leakage Forward Gate to Source Leakage Reverse	At rated V _{GS}	I _{GSS}	— —	— —	+100 -100	nA
Total Gate Charge	V _{GS} =10 Volts	Q _g	—	83	120	nC
Gate to Source Charge	80% rated V _{DS}	Q _{gs}	—	11	17	
Gate to Drain Charge	Rated I _D	Q _{gd}	—	42	64	
Turn on Delay Time	V _{DD} =50% Rated V _{DS}	t _{d(on)}	—	18	27	nsec
Rise Time	50% Rated I _D	t _r	—	44	66	
Turn on Delay Time	RG= 6.2Ω	t _{d(off)}	—	70	100	
Fall Time	PD= 20 W	t _f	—	40	60	
Diode Forward Voltage (I _S = Rated I _D , V _{GS} =0 V, T _J =25°C)		V _{SD}	—	—	1.4	V
Diode Reverse Recovery Time Reverse Recovery Charge	T _J =25°C I _F = Rated I _D di/dt=100A/μsec	t _{rr}	280	580	1200	nsec
		Q _{RR}	3.2	6.7	14	μC
Input Capacitance	V _{GS} =0 Volts	C _{iss}	—	2700	—	pF
Input Capacitance	V _{DS} =25 Volts	C _{oss}	—	350	—	
Reverse Transfer Capacitance	f=1 MHz	C _{rss}	—	75	—	

For thermal derating curves and other characteristics please contact SSDI Marketing Department.

Available Part Numbers:

**SFF450M; SFF450MDB; SFF450MUB;
SFF450Z; SFF450ZDB; SFF450ZUB;**

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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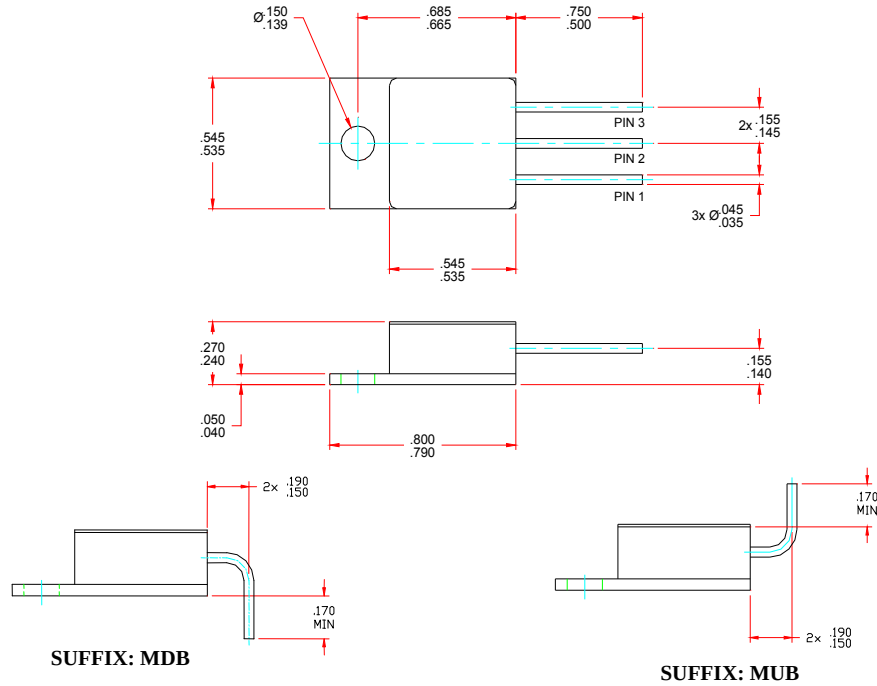
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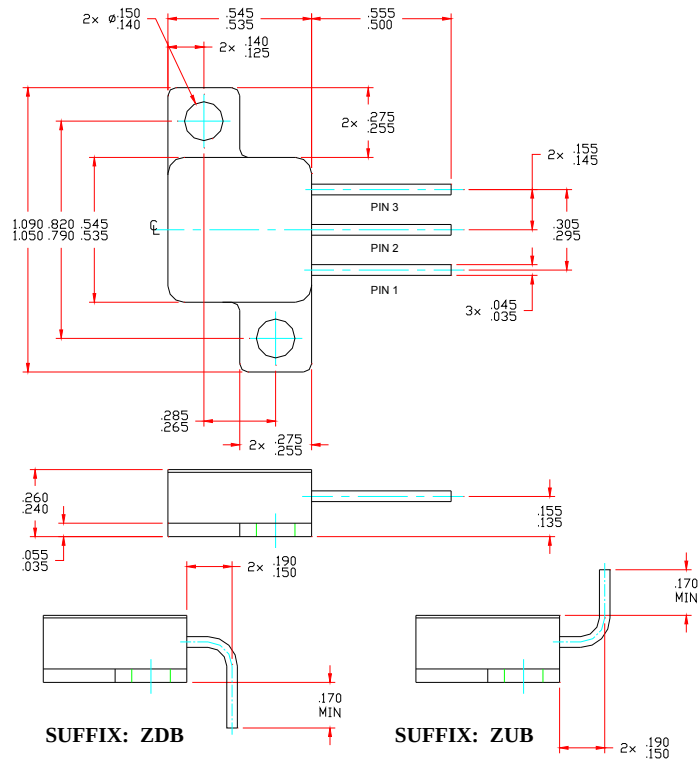
SFF450M

SFF450Z

Case Outline: TO-254 (M)



Case Outline: TO-254Z (Z)



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