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

SFF450M
SFF450Z

DESIGNER'S DATA SHEET

13 AMP / 500 Volts
0.4 Ω
N-Channel POWER MOSFET

Part Number / Ordering Information [1/]

SFF450

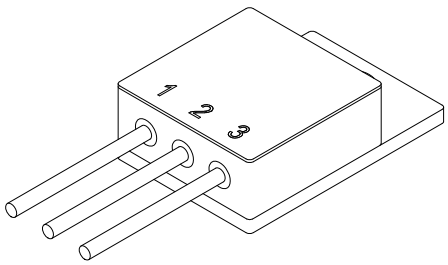
- **Screening** [2/] __ = Not Screen, TX = TX Level, TXV = TXV Level, S = S Level
- **Lead Option** [3/] __ = Straight Leads, DB = Down Bend, UB = Up Bend
- **Package** [3/] M = TO-254, Z = TO-254Z

Features:

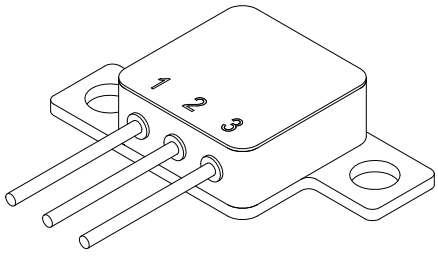
- Rugged Construction with Polysilicon Gate Cell
- Low $R_{DS(ON)}$ and High Transconductance
- Excellent High Temperature Stability
- Very Fast Switching Speed
- Fast Recovery and Superior dV/dt Performance
- Increased Reverse Energy Capability
- Low Input and Transfer Capacitance for Easy Paralleling
- 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	**ºC**
Maximum Thermal Resistance Junction to Case		$R_{\theta JC}$	1	**ºC/W**
Total Device Dissipation	T_C = 25ºC T_C = 55ºC	P_D	125 95	**W**

TO-254 (M)



TO-254Z (Z)



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

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SFF450M
SFF450Z

Electrical Characteristics @ T_J = 25ºC (Unless Otherwise Specified)		Symbol	Min	Typ	Max	Units
Drain to Source Breakdown Voltage (VGS=0 V, ID=250 μA)		BV_{DSS}	500	—	—	Volts
Drain to Source On State Resistance (VGS=10 V, ID= 7.2 A)		$R_{DS(on)}$	—	0.35	0.40	Ω
On State Drain Current (VDS>ID(on) X RDS(on) Max, VGS=10 V)		$I_{D(on)}$	13	—	—	A
Gate Threshold Voltage (VDS=VGS, ID= 250 μA)		$V_{GS(th)}$	2.0	—	4.0	V
Forward Transconductance (VDS≥ 50 V, IDS= 7.2 A)		g_{fs}	8.7	131	—	mho
Zero Gate Voltage Drain Current (VDS=max rated voltage, VGS=0 V) (VDS=80% rated VDS, VGS=0 V, TA=125ºC)		I_{DSS}	— —	— —	250 1000	μA
Gate to Source Leakage Forward **Gate to Source Leakage Reverse**	At rated VGS	I_{GSS}	— —	— —	+100 -100	nA
Total Gate Charge **Gate to Source Charge** **Gate to Drain Charge**	VGS=10 Volts 80% rated VDS Rated ID	Q_g Q_{gs} Q_{gd}	— — —	83 11 42	120 17 64	nC
Turn on Delay Time **Rise Time** **Turn on Delay Time** **Fall Time**	VDD=50% Rated VDS 50% Rated ID RG= 6.2Ω PD= 20 W	$td_{(on)}$ tr $td_{(off)}$ tf	— — — —	18 44 70 40	27 66 100 60	nsec
Diode Forward Voltage (IS= Rated ID, VGS=0 V, TJ=25ºC)		V_{SD}	—	—	1.4	V
Diode Reverse Recovery Time **Reverse Recovery Charge**	T_J=25ºC IF= Rated ID di/dt=100A/μsec	t_{rr} Q_{RR}	280 3.2	580 6.7	1200 14	nsec μC
Input Capacitance **Input Capacitance** **Reverse Transfer Capacitance**	VGS=0 Volts VDS=25 Volts f=1 MHz	C_{iss} C_{oss} C_{rss}	— — —	2700 350 75	— — —	pF

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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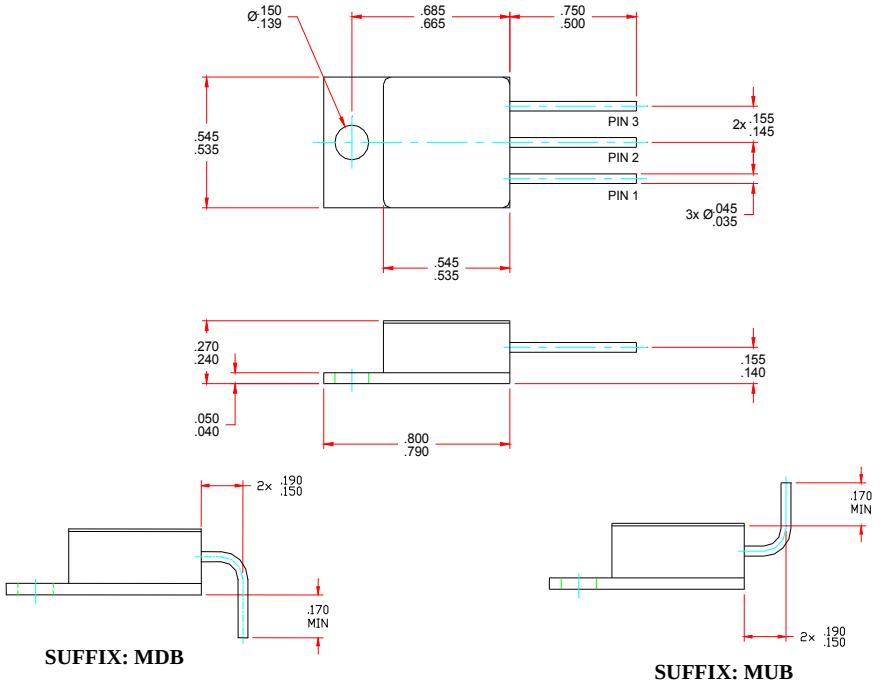
SFF450M
SFF450Z

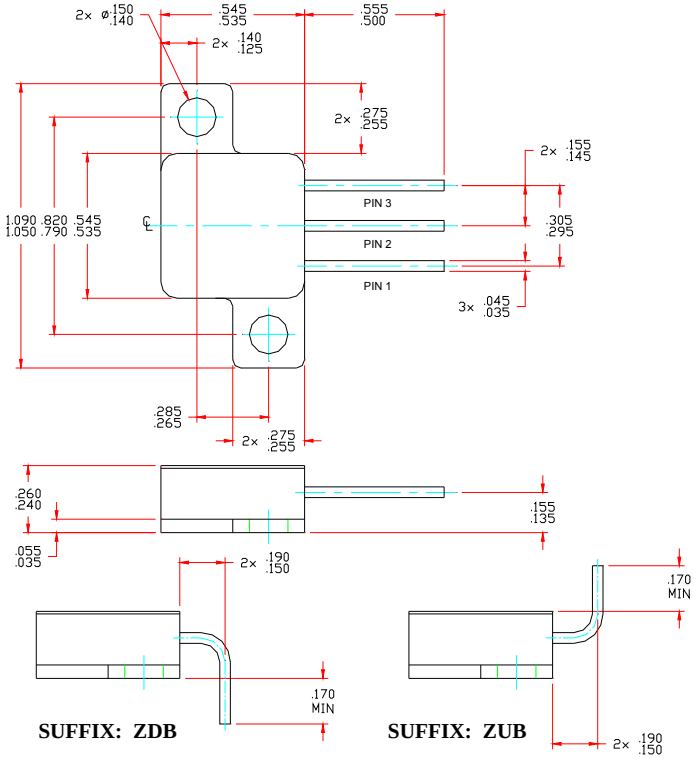
Case Outline: TO-254 (M)



SUFFIX: MDB

SUFFIX: MUB

Case Outline: TO-254Z (Z)



SUFFIX: ZDB

SUFFIX: ZUB

NOTE: All specifications are subject to change without notification. SCD's for these devices should be reviewed by SSDI prior to release.	**DATA SHEET #: F00097E**	**DOC**