



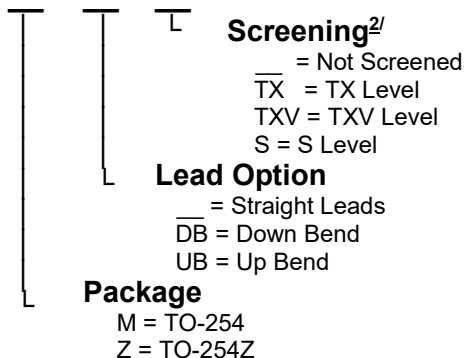
Solid State Devices, Inc.

14701 Firestone Blvd * La Mirada, CA 90638
Phone: (562) 404-4470 * Fax: (562) 404-1773
ssdi@ssdi-power.com * www.ssdi-power.com

DESIGNER'S DATA SHEET

Part Number / Ordering Information ^{1/}

SFF9140



SFF9140M

SFF9140Z

-18 AMP
P-Channel POWER MOSFET
-100 Volts
0.20 Ω

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
- Replaces IRF9140 Types

Maximum Ratings ^{3/}	Symbol	Value	Unit
Drain – Source Voltage	V_{DS}	-100	V
Gate – Source Voltage	V_{GS}	± 20	V
Continuous Drain Current $T_C = 25^\circ\text{C}$ $T_C = 100^\circ\text{C}$	I_D	18 11	A
Operating & Storage Temperature	$T_{OP} \text{ \& } T_{STG}$	-55 to +150	$^\circ\text{C}$
Thermal Resistance, Junction to Case	$R_{\theta JC}$	1.25	$^\circ\text{C/W}$
Total Device Power Dissipation $T_C = 25^\circ\text{C}$ $T_C = -55^\circ\text{C}$	P_D	63 48	W
Single Pulse Avalanche Energy	E_{AS}	500	mJ
Repetitive Avalanche Energy	E_{AR}	12.5	mJ

NOTES:

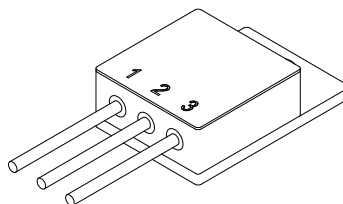
*Pulse Test: Pulse Width = 300 μsec , Duty Cycle = 2%.

1/ For ordering information, price, and availability - contact factory.

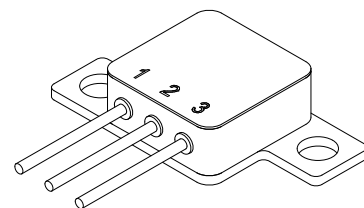
2/ Screening based on MIL-PRF-19500. Screening flows available on request.

3/ Unless otherwise specified, all electrical characteristics @25 $^\circ\text{C}$.

TO-254 (M)



TO-254Z (Z)



*Dime used for size reference

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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SFF9140M

SFF9140Z

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}	-100	—	—	V
Drain to Source On State Resistance $I_D = 11\text{ A}$ ($V_{GS} = -10\text{ V}$) $I_D = 18\text{ A}$	$R_{DS(on)}$	— —	0.15 —	0.20 0.23	Ω
Temperature Coefficient of Breakdown Voltage	$\frac{\Delta BV_{DSS}}{\Delta T_j}$	—	-0.087	—	V/°C
Gate Threshold Voltage ($V_{DS} = V_{GS}$, $I_D = -250\text{ }\mu\text{A}$)	$V_{GS(th)}$	-2.0	—	-4.0	V
Forward Transconductance ($V_{DS} \geq 15\text{ V}$, $I_{DS} = 11\text{ A}$)	g_{fs}	6.2	8.0	—	S(Ω)
Zero Gate Voltage Drain Current ($V_{DS} = 80\%$ rated voltage, $V_{GS} = 0\text{ V}$) ($V_{DS} = 80\%$ rated V_{DS} , $V_{GS} = 0\text{ V}$, $T_A = 125^\circ\text{C}$)	I_{DSS}	— —	— —	25 250	μA
Gate to Source Leakage Forward Gate to Source Leakage Reverse At Rated V_{GS}	I_{GSS}	— —	— —	-100 100	nA
Total Gate Charge $V_{GS} = -10\text{ V}$ Gate to Source Charge 50% rated V_{DS} Gate to Drain Charge $I_D = 18\text{ A}$	Q_g Q_{gs} Q_{gd}	31 — 7	50 3 25	70 13 45	nC
Turn on Delay Time $V_{DD} = 50\%$ Rise Time Rated V_{DS} Turn off Delay Time Rated I_D Fall Time $R_G = 9.1\text{ }\Omega$	$t_{(on)}$ t_r $t_{d(off)}$ t_f	— — — —	15 8 35 20	35 85 85 65	nsec
Diode Forward Voltage $I_S = \text{Rated } I_D$ $V_{GS} = 0\text{ V}$ $T_J = 25^\circ\text{C}$	V_{SD}	—	—	-4.2	V
Diode Reverse Recovery Time $T_J = 25^\circ\text{C}$ Reverse Recovery Charge $I_F = \text{Rated } I_D$ $di/dt = 100\text{ A}/\mu\text{sec}$	t_{RR} Q_{RR}	— —	170 —	280 3.6	nsec μC
Input Capacitance $V_{GS} = 0\text{ V}$ Output Capacitance $V_{DS} = -25\text{ V}$ Reverse Transfer Capacitance $f = 1\text{ MHz}$	C_{iss} C_{oss} C_{rss}	— — —	1400 600 200	— — —	pF

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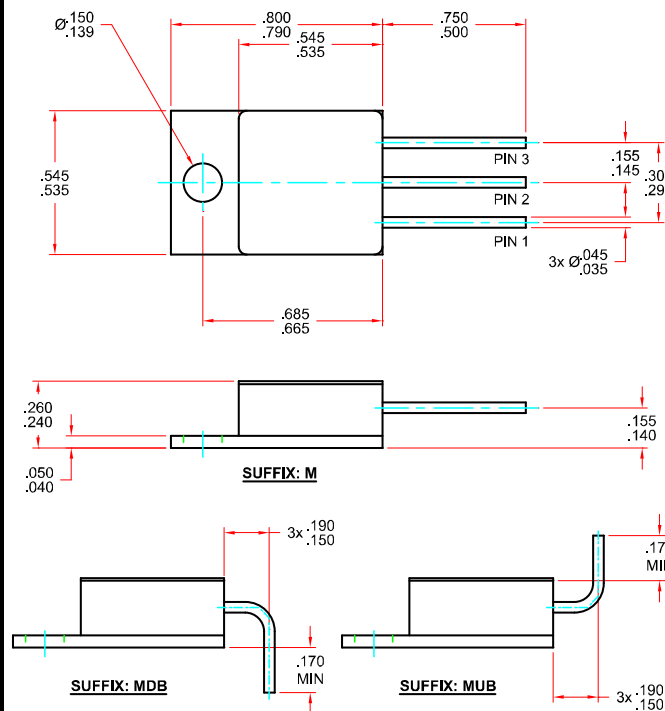
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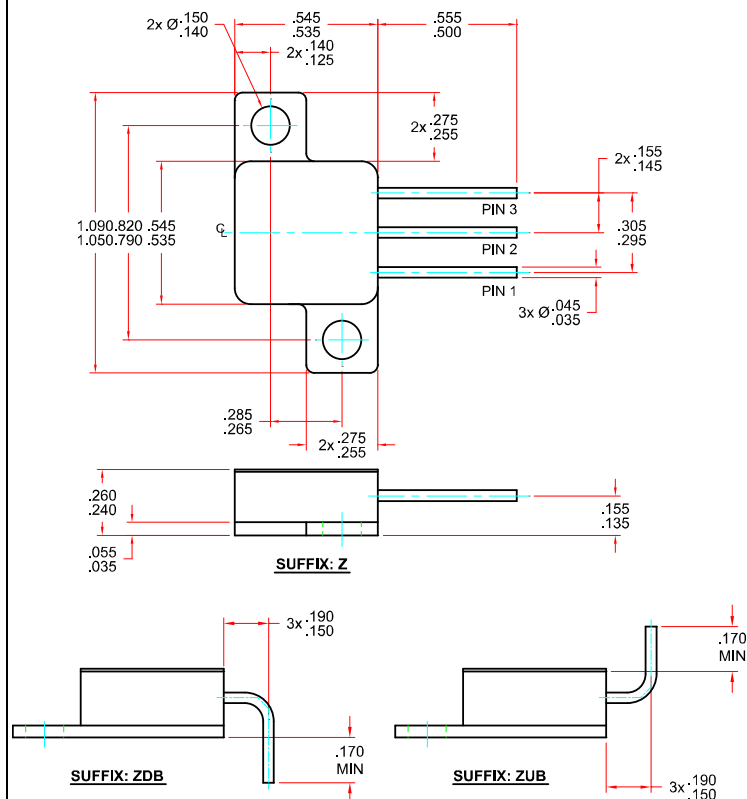
SFF9140M

SFF9140Z

PACKAGE OUTLINE: TO-254 (M)



PACKAGE OUTLINE: TO-254Z (Z)



Available with glass or ceramic seals – contact factory for details.

Available Part Numbers:

SFF9140M, SFF9140MUB, SFF9140MDB,
 SFF9140Z, SFF9140ZUB, SFF9140ZDB

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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