



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

Screening^{2/}

— = Not Screened

TX = TX Level

TXV = TXV Level

S = S Level

Package

S.5 = SMD.5

G = Cerpack

SFF9140S.5 SFF9140G

-23 AMP
P-Channel POWER MOSFET
-100 Volts
0.13 Ω typical

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
- Improved replacement of 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	-23 -11	A
Operating & Storage Temperature	$T_{OP} \text{ \& } T_{STG}$	-55 to +150	$^\circ\text{C}$
Thermal Resistance, Junction to Case	$R_{\theta JC}$	1.6	$^\circ\text{C/W}$
Total Device Power Dissipation $T_C = 25^\circ\text{C}$	P_D	125	W
Single Pulse Avalanche Energy	E_{AS}	950	mJ
Repetitive Avalanche Energy	E_{AR}	18	mJ

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 .

SMD.5 (S.5)

Cerpack (G)



*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.

DATA SHEET #: FT0102B

DOCX



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SFF9140S.5

SFF9140G

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	108	—	V
Drain to Source On State Resistance ($V_{GS} = -10\text{ V}$) $I_D = 10\text{ A}$ $I_D = 20\text{ A}$	$R_{DS(on)}$	— —	0.130 0.135	0.15 0.18	Ω
Gate Threshold Voltage ($V_{DS} = V_{GS}$, $I_D = -250\text{ }\mu\text{A}$)	$V_{GS(th)}$	-2.0	-3.3	-4.0	V
Forward Transconductance ($V_{DS} = 15\text{ V}$, $I_{DS} = 10\text{ A}$)	g_{fs}	6.0	7.5	—	S(O)
Zero Gate Voltage Drain Current ($V_{DS} = 80\text{ V}$, $V_{GS} = 0\text{ V}$) ($V_{DS} = 80\text{ V}$, $V_{GS} = 0\text{ V}$, $T_A = 125^\circ\text{C}$) ($V_{DS} = 80\text{ V}$, $V_{GS} = 0\text{ V}$, $T_A = 150^\circ\text{C}$)	I_{DSS}	— — —	-0.003 -1 -2	-1 25 —	μA
Gate to Source Leakage Forward Gate to Source Leakage Reverse At Rated V_{GS}	I_{GSS}	— —	-5 -5	-100 100	nA
Total Gate Charge Gate to Source Charge Gate to Drain Charge $V_{GS} = -10\text{ V}$ $V_{DS} = -50\text{ V}$ $I_D = -18\text{ A}$	Q_g Q_{gs} Q_{gd}	30 5 7	43 12 22	60 15 35	nC
Turn on Delay Time Rise Time Turn off Delay Time Fall Time $V_{DD} = 50\text{ V}$ $I_D = 18\text{ A}$ $V_{GS} = -10\text{ V}$ $R_G < 10\text{ }\Omega$	$t_{(on)}$ t_r $t_{d(off)}$ t_f	— — — —	30 73 56 40	40 90 80 65	nsec
Diode Forward Voltage $I_S = \text{Rated } I_D$ $V_{GS} = 0\text{ V}$ $T_J = 25^\circ\text{C}$	V_{SD}	—	-1.3	-2.0	V
Diode Reverse Recovery Time Reverse Recovery Charge $T_J = 25^\circ\text{C}$ $I_F = 10\text{ A}$ $di/dt = 100\text{ A}/\mu\text{sec}$	t_{rr} Q_{rr}	— —	125 0.7	200 3	nsec μC
Input Capacitance Output Capacitance Reverse Transfer Capacitance $V_{GS} = 0\text{ V}$ $V_{DS} = -25\text{ V}$ $f = 1\text{ MHz}$	C_{iss} C_{oss} C_{rss}	— — —	1250 430 215	— — —	pF

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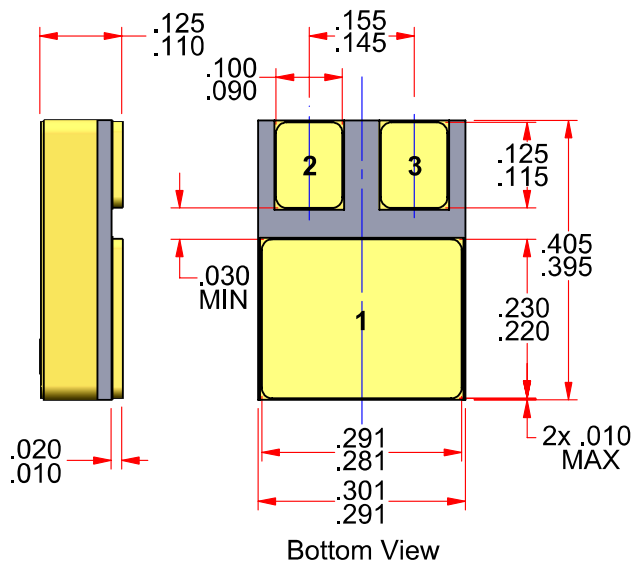
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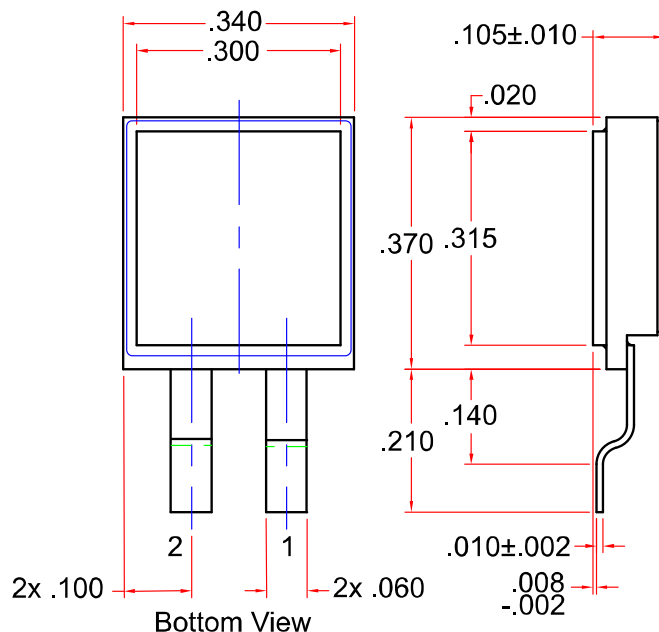
SFF9140S.5

SFF9140G

PACKAGE OUTLINE: SMD.5 (S.5)



PACKAGE OUTLINE: Cerpack (G)



Available Part Numbers:

SFF9140S.5, SFF9140G

PIN ASSIGNMENT (Standard)

Package	Drain	Source	Gate
SMD.5 (S.5)	Pin 1	Pin 2	Pin 3
Cerpack (G)	Bottom Tab	Pin 1	Pin 2

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