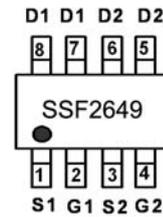
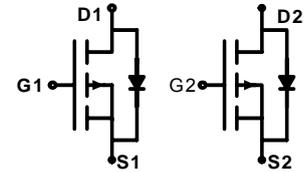


Main Product Characteristics:

V_{DSS}	-20V
$R_{DS(on)}$	49mohm(typ.)
I_D	-7.9A


SOP-8

Marking and pin Assignment

Schematic diagram
Features and Benefits:

- Advanced trench MOSFET process technology
- Special designed for PWM, load switching and general purpose applications
- Ultra low on-resistance with low gate charge
- Fast switching and reverse body recovery
- 150°C operating temperature


Description:

It utilizes the latest trench processing techniques to achieve the high cell density and reduces the on-resistance with high repetitive avalanche rating. These features combine to make this design an extremely efficient and reliable device for use in power switching application and a wide variety of other applications

Absolute max Rating:

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V _{DS}	-20	V
Gate-Source Voltage	V _{GS}	±10	V
Drain Current-Continuous@ Current-Pulsed (Note 1)	I _D	-7.9	A
	I _{DM}	-30	A
Maximum Power Dissipation	P _D	5	W
Operating Junction and Storage Temperature Range	T _J , T _{STG}	-55 To 150	°C

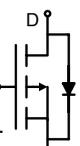
Thermal Resistance

Thermal Resistance,Junction-to-Ambient (Note 2)	R _{θJA}	85	°C/W
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Electrical Characterizes @ $T_A=25^{\circ}\text{C}$ unless otherwise specified

Symbol	Parameter	Conditions	Min	Typ.	Max.	Units
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=-250\mu A$	-20			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-20V, V_{GS}=0V$			-1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 12V, V_{DS}=0V$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.7		-3.0	V
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS}=-4.5V, I_D=-2.9A$		49	58	m Ω
		$V_{GS}=-2.7V, I_D=-1.5A$		82	98	
Forward Transconductance	g_{FS}	$V_{DS}=-5V, I_D=-5.3A$		-		S
Input Capacitance	C_{iss}	$V_{DS}=-20V, V_{GS}=0V,$ $F=1.0MHz$		1040		PF
Output Capacitance	C_{oss}			156		PF
Reverse Transfer Capacitance	C_{rss}			112		PF
Turn-on Delay Time	$t_{d(on)}$	$V_{DD}=-10V, I_D=-1A$ $V_{GS}=-4.5V, R_{GEN}=6\Omega$		9		nS
Turn-on Rise Time	t_r			8		nS
Turn-Off Delay Time	$t_{d(off)}$			87		nS
Turn-Off Fall Time	t_f			38		nS
Total Gate Charge	Q_g	$V_{DS}=-10V,$ $I_D=-4.7A, V_{GS}=-4.5V$		12		nC
Gate-Source Charge	Q_{gs}			2.7		nC
Gate-Drain Charge	Q_{gd}			1.5		nC

Source-Drain Ratings and Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
I_S	Continuous Source Current (Body Diode)	—	—	-7.9	A	MOSFET symbol showing the integral reverse p-n junction diode. 
I_{SM}	Pulsed Source Current (Body Diode)	—	—	-30	A	
V_{SD}	Diode Forward Voltage	—	—	-1	V	$I_S=-2.9A, V_{GS}=0V$

NOTES:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, $t \leq 10$ sec.
3. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
4. Guaranteed by design, not subject to production testing.

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

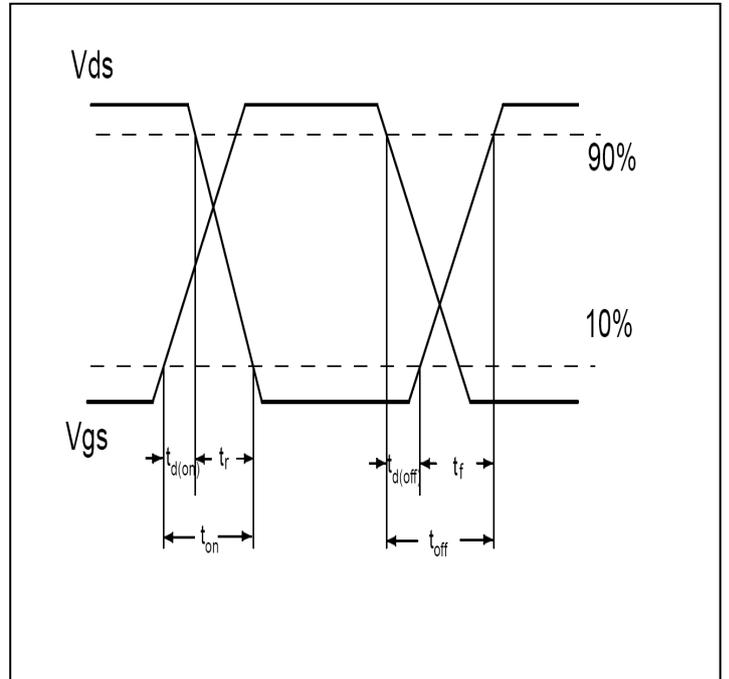
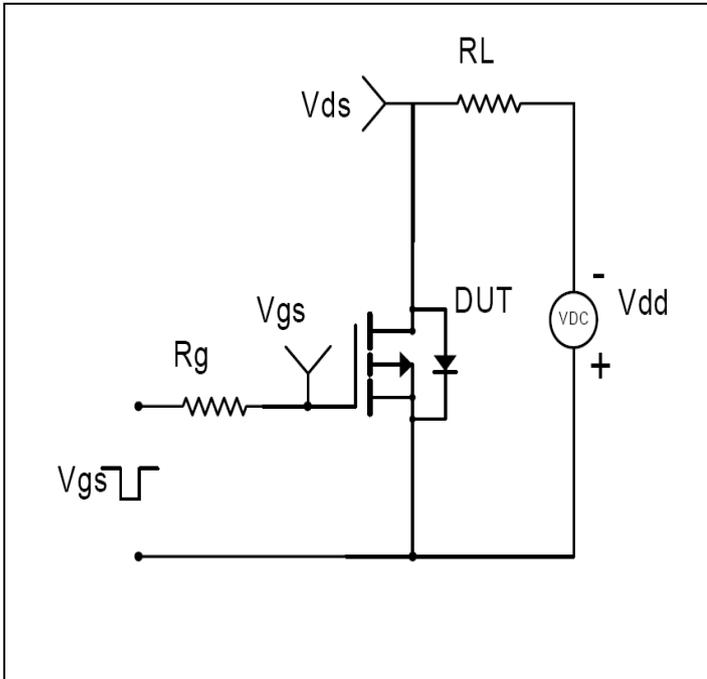


Figure 1: Switching Test Circuit

Figure 2: Switching Waveforms

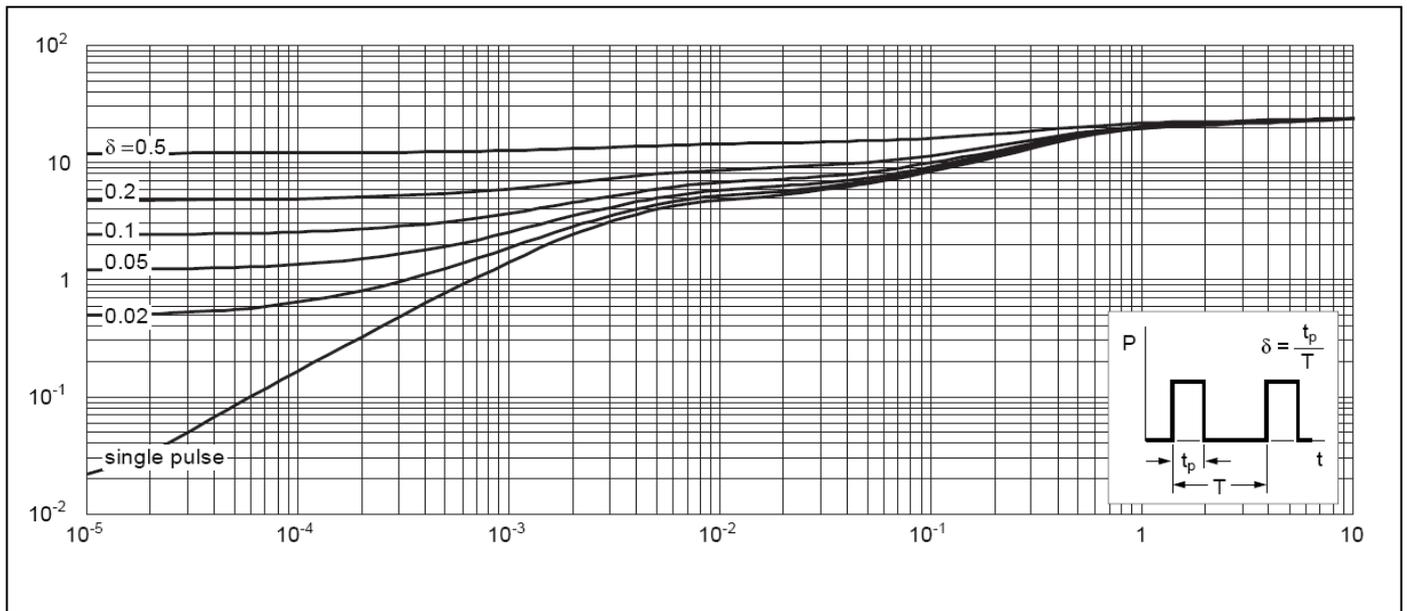
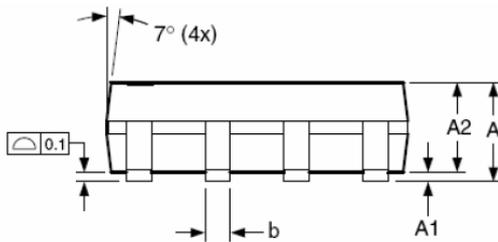
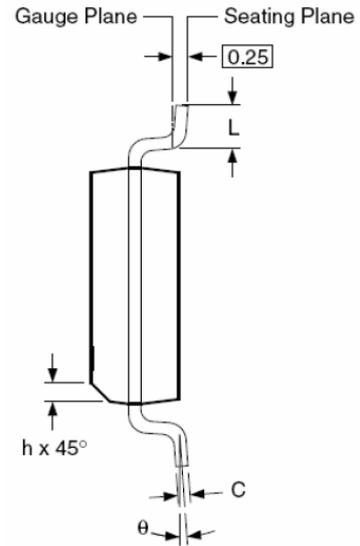
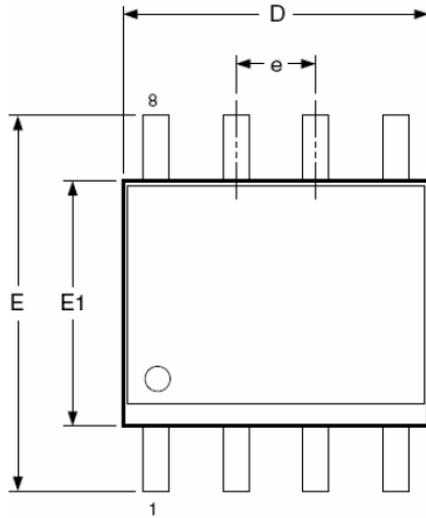
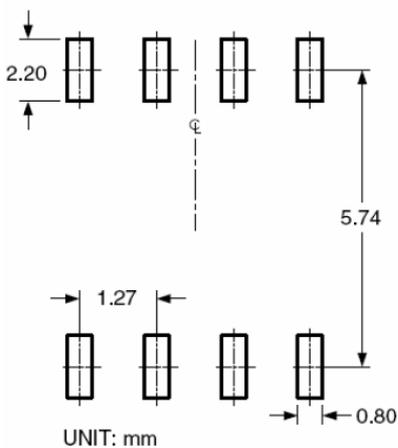


Figure3. Maximum Effective Transient Thermal Impedance, Junction-to-Case

Mechanical Data:

RECOMMENDED LAND PATTERN

Dimensions in millimeters

Symbols	Min.	Nom.	Max.
A	1.35	1.65	1.75
A1	0.10	—	0.25
A2	1.25	1.50	1.65
b	0.31	—	0.51
c	0.17	—	0.25
D	4.80	4.90	5.00
E1	3.80	3.90	4.00
e	1.27 BSC		
E	5.80	6.00	6.20
h	0.25	—	0.50
L	0.40	—	1.27
θ	0°	—	8°

Dimensions in inches

Symbols	Min.	Nom.	Max.
A	0.053	0.065	0.069
A1	0.004	—	0.010
A2	0.049	0.059	0.065
b	0.012	—	0.020
c	0.007	—	0.010
D	0.189	0.193	0.197
E1	0.150	0.154	0.157
e	0.050 BSC		
E	0.228	0.236	0.244
h	0.010	—	0.020
L	0.016	—	0.050
θ	0°	—	8°

NOTES:

1. Dimensions are inclusive of plating
2. Package body sizes exclude mold flash and gate burrs. Mold flash at the non-lead sides should be less than 6 mils.
3. Dimension L is measured in gauge plane.
4. Controlling dimension is millimeter; converted inch dimensions are not necessarily exact.

Ordering and Marking Information
Device Marking: SSF2649

Package (Available)
SOP-8
Operating Temperature Range
C : -55 to 150 °C

Devices per Unit

Package Type	Units/Tube	Tubes/Inner Box	Units/Inner Box	Inner Boxes/Carton Box	Units/Carton Box
SOP-8	2500	2	5000	8	40000

Reliability Test Program

Test Item	Conditions	Duration	Sample Size
High Temperature Reverse Bias(HTRB)	$T_j=125^{\circ}\text{C}$ or 150°C @ 80% of Max $V_{DSS}/V_{CES}/V_R$	168 hours 500 hours 1000 hours	3 lots x 77 devices
High Temperature Gate Bias(HTGB)	$T_j=125^{\circ}\text{C}$ or 150°C @ 100% of Max V_{GSS}	168 hours 500 hours 1000 hours	3 lots x 77 devices

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