



Dual N-Channel Enhancement Mode Field Effect Transistor

PRODUCT SUMMARY		
V _{DSS}	I _D	R _{DS(ON)} (mΩ) Max
20V	13A	9.0 @ V _{GS} =4.5V
		9.5 @ V _{GS} =4.0V
		10.0 @ V _{GS} =3.7V
		10.5 @ V _{GS} =3.1V
		11.0 @ V _{GS} =2.5V

FEATURES

- Super high dense cell design for low R_{DS(ON)}.
- Rugged and reliable.
- Surface Mount Package.
- ESD Protected.



ABSOLUTE MAXIMUM RATINGS (T_A=25°C unless otherwise noted)

Symbol	Parameter	Limit	Units
V _{DS}	Drain-Source Voltage	20	V
V _{GS}	Gate-Source Voltage	±10	V
I _D	Drain Current-Continuous ^c	T _A =25°C	13
		T _A =70°C	10.4
I _{DM}	-Pulsed ^{a c}	58	A
P _D	Maximum Power Dissipation	T _A =25°C	1.32
		T _A =70°C	0.84
T _J , T _{STG}	Operating Junction and Storage Temperature Range	-55 to 150	°C

THERMAL CHARACTERISTICS

R _{θJA}	Thermal Resistance, Junction-to-Ambient	95	°C/W
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SP8610

Ver 1.1

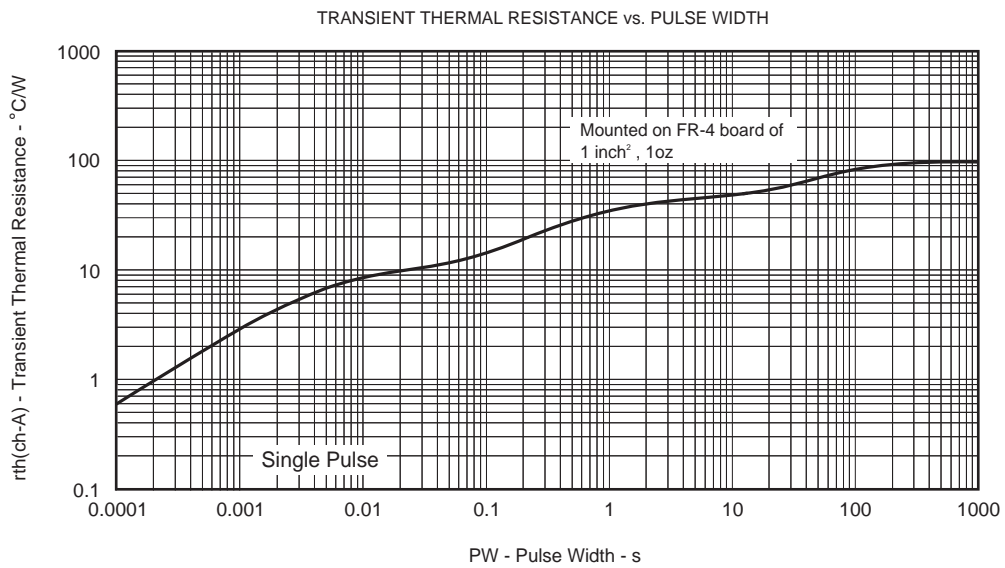
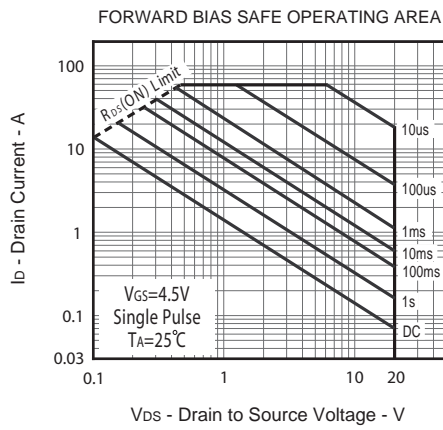
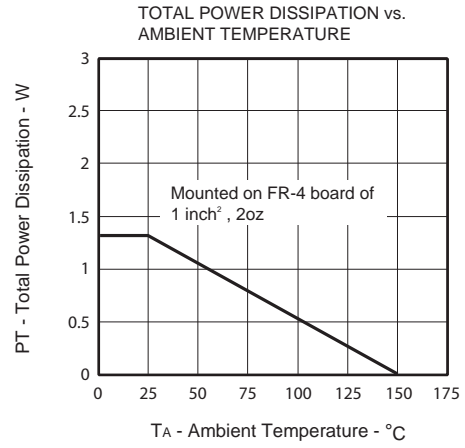
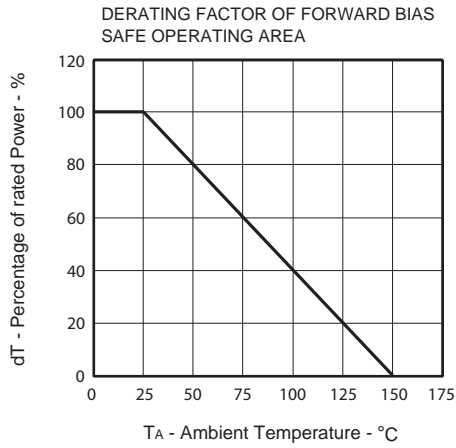
ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

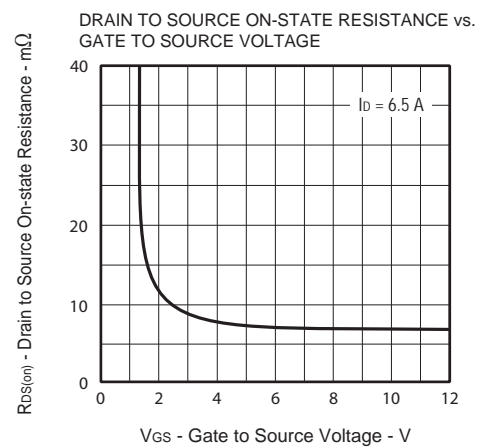
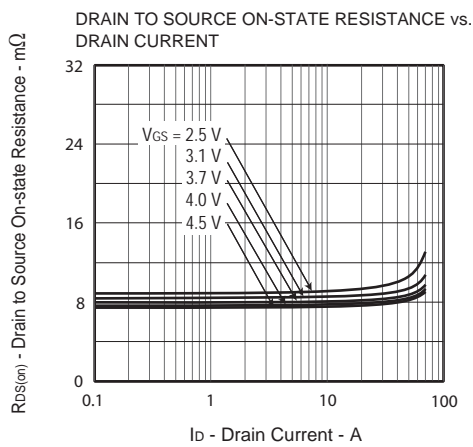
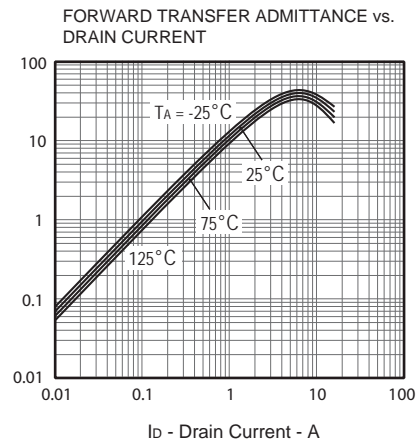
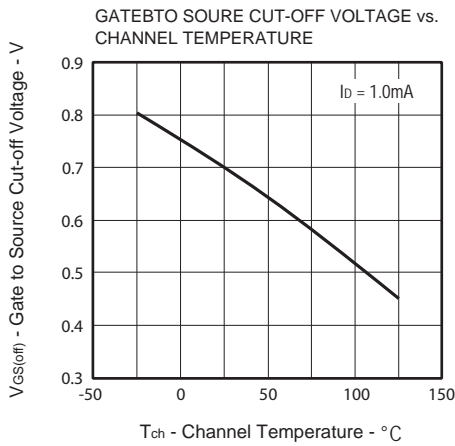
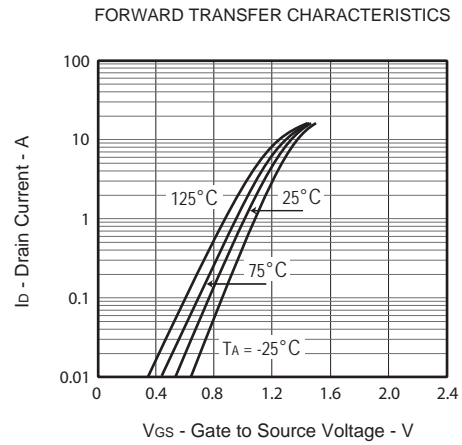
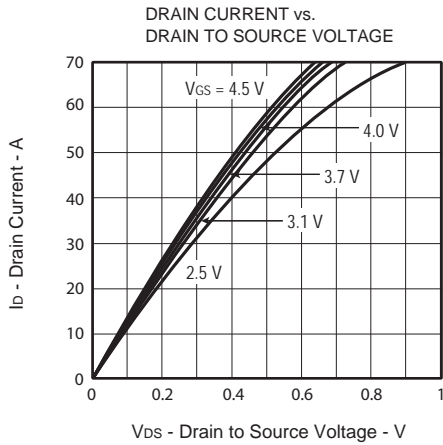
Symbol	Parameter	Conditions	Min	Typ	Max	Units
OFF CHARACTERISTICS						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V , I _D =250uA	20			V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =16V , V _{GS} =0V			1	uA
I _{GSS}	Gate-Body Leakage Current	V _{GS} = ±10V , V _{DS} =0V			±10	uA
ON CHARACTERISTICS						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =1mA	0.3	0.7	1.2	V
R _{DS(ON)}	Drain-Source On-State Resistance	V _{GS} =4.5V , I _D =6.5A	6.2	7.5	9.0	m ohm
		V _{GS} =4.0V , I _D =6.5A	6.4	7.7	9.5	m ohm
		V _{GS} =3.7V , I _D =6.5A	6.7	8.0	10.0	m ohm
		V _{GS} =3.1V , I _D =6.5A	7.0	8.5	10.5	m ohm
		V _{GS} =2.5V , I _D =3.25A	7.5	9.0	11.0	m ohm
g _{FS}	Forward Transconductance	V _{DS} =5V , I _D =6.5A		34		S
SWITCHING CHARACTERISTICS ^b						
t _{D(ON)}	Turn-On Delay Time	V _{DD} =16V I _D =6.5A		274		ns
t _r	Rise Time			1034		ns
t _{D(OFF)}	Turn-Off Delay Time	V _{GS} =4.5V R _{GEN} =6 ohm		4988		ns
t _f	Fall Time			2932		ns
Q _g	Total Gate Charge	V _{DS} =16V, I _D =13A, V _{GS} =4.5V		13		nC
Q _{gs}	Gate-Source Charge	V _{DS} =16V, I _D =13A, V _{GS} =4.5V		2.3		nC
Q _{gd}	Gate-Drain Charge			6.0		nC
DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS						
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _S =13A		0.86	1.2	V

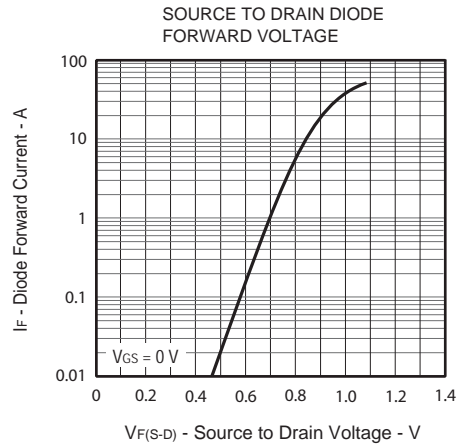
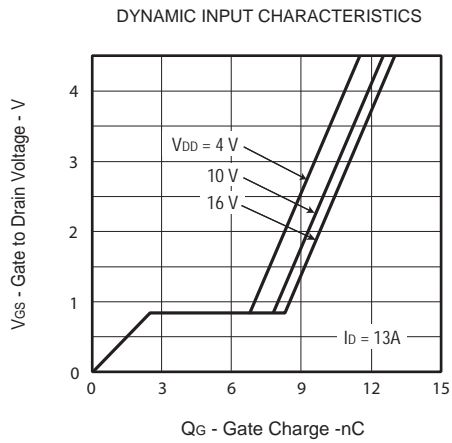
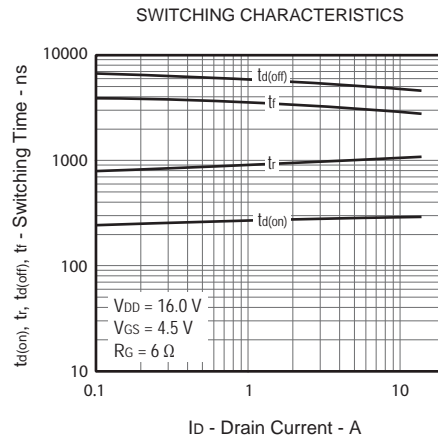
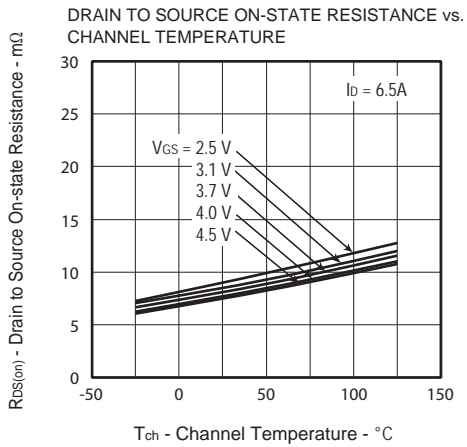
Notes

- a. Pulse Test: Pulse Width ≤ 10us, Duty Cycle ≤ 1%.
- b. Guaranteed by design, not subject to production testing.
- c. Drain current limited by maximum junction temperature.
- d. Mounted on FR4 Board of 1 inch² , 2oz.

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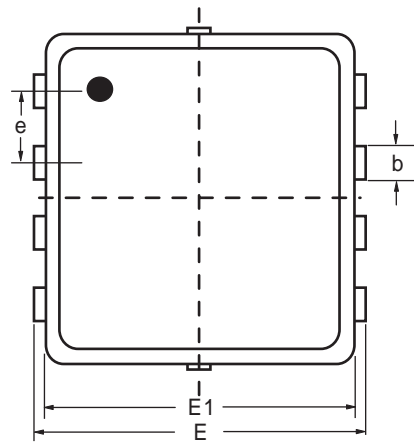




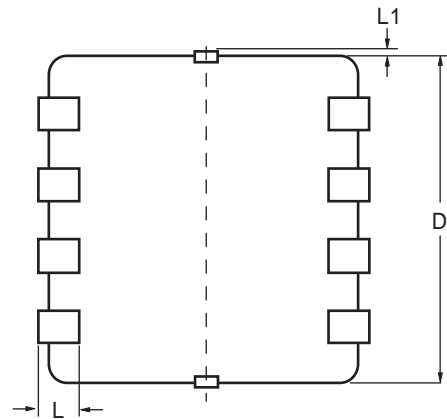


PACKAGE OUTLINE DIMENSIONS

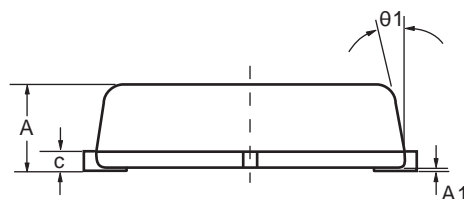
S mini 8



TOP VIEW



BOTTOM VIEW



SIDE VIEW

SYMBOLS	MILLIMETERS		
	MIN	NOM	MAX
A	0.700	0.800	0.900
A1	0.000	—	0.050
b	0.240	0.300	0.350
c	0.080	0.152	0.250
D	2.800	2.900	3.000
E	2.700	2.800	2.900
E1	2.200	2.300	2.400
e	0.650 BSC		
L	0.200	0.375	0.450
L1	0.000	—	0.100
θ_1	0°	10°	12°

TOP MARKING DEFINITION

