



Dual N-Channel Enhancement Mode Field Effect Transistor

PRODUCT SUMMARY		
V _{DSS}	I _D	R _{DS(ON)} (mΩ) Max
20V	7.2A	17.5 @ V _{GS} =4.5V
		18.5 @ V _{GS} =4.0V
		20.0 @ V _{GS} =3.7V
		24.5 @ V _{GS} =3.1V
		27.0 @ 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	±12	V
I _D	Drain Current-Continuous ^c	T _A =25°C	7.2
		T _A =70°C	5.8
I _{DM}	-Pulsed ^{a c}	43	A
P _D	Maximum Power Dissipation	T _A =25°C	1.47
		T _A =70°C	0.94
T _J , T _{STG}	Operating Junction and Storage Temperature Range	-55 to 150	°C

THERMAL CHARACTERISTICS

R _{θ JA}	Thermal Resistance, Junction-to-Ambient	85	°C/W
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SP8601

Ver 2.5

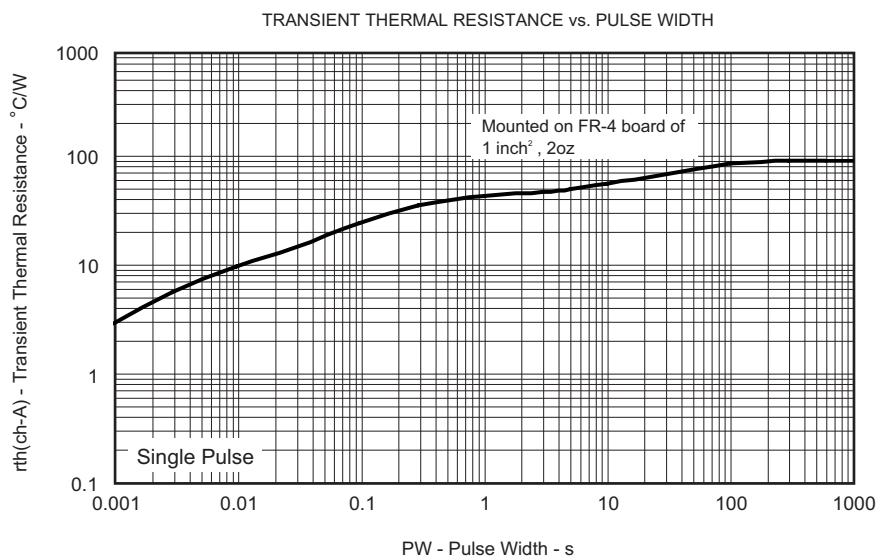
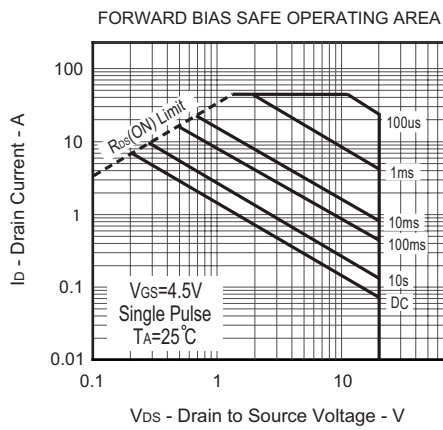
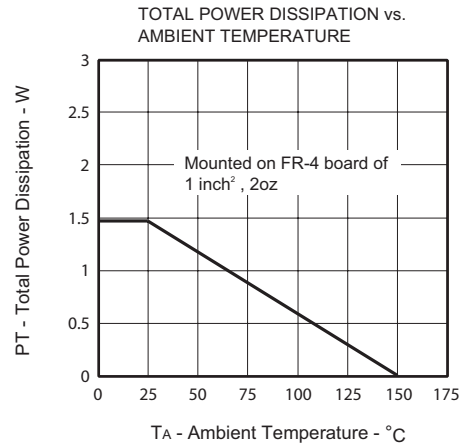
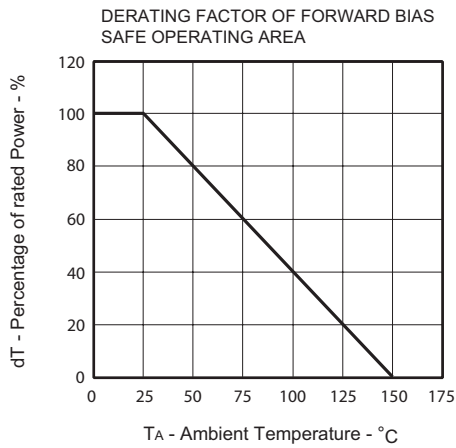
ELECTRICAL CHARACTERISTICS (TA=25°C unless otherwise noted)

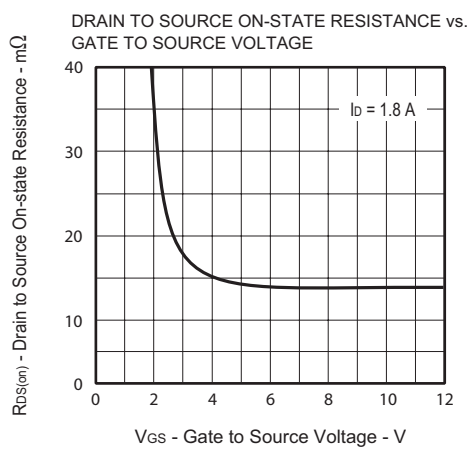
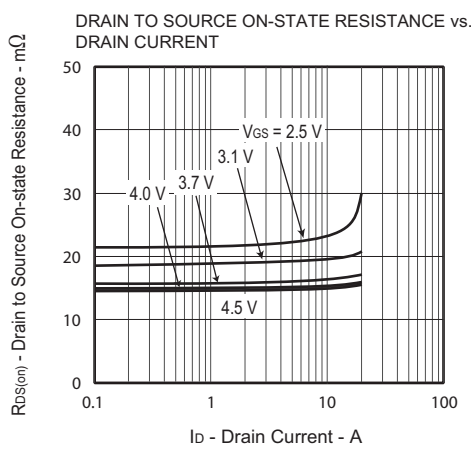
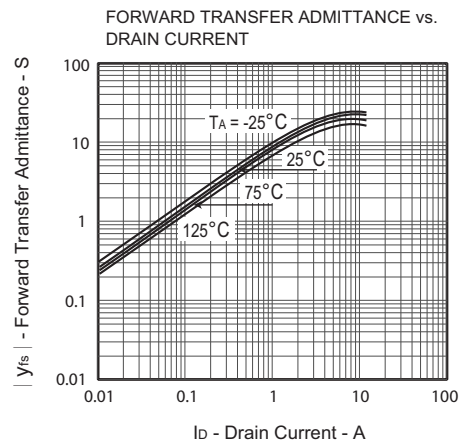
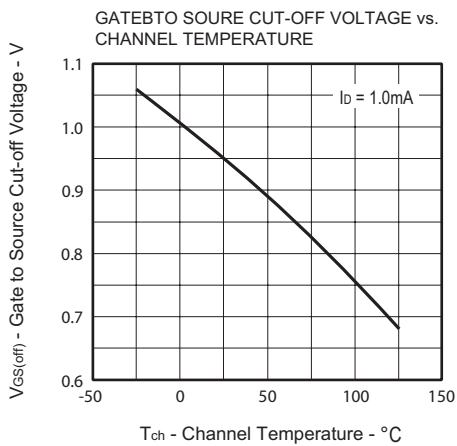
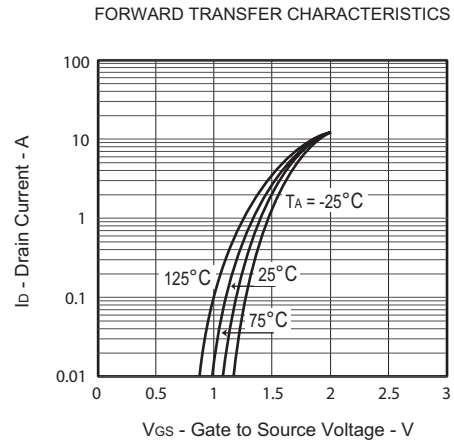
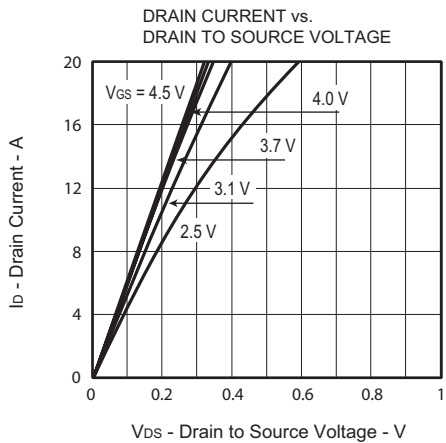
Symbol	Parameter	Conditions	Min	Typ	Max	Units
OFF CHARACTERISTICS						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	20			V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =16V, V _{GS} =0V			1	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} = ±8V, V _{DS} =0V			±1	μA
ON CHARACTERISTICS						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =1.0mA	0.5	0.95	1.5	V
R _{DS(ON)}	Drain-Source On-State Resistance	V _{GS} =4.5V, I _D =1.8A	12.0	14.5	17.5	m ohm
		V _{GS} =4.0V, I _D =1.8A	12.5	15.0	18.5	m ohm
		V _{GS} =3.7V, I _D =1.8A	13.5	16.0	20.0	m ohm
		V _{GS} =3.1V, I _D =1.8A	14.5	18.5	24.5	m ohm
		V _{GS} =2.5V, I _D =1.8A	18.0	22.0	27.0	m ohm
g _{FS}	Forward Transconductance	V _{DS} =5V, I _D =3.6A		18		S
DYNAMIC CHARACTERISTICS^b						
C _{ISS}	Input Capacitance	V _{DS} =10V, V _{GS} =0V f=1.0MHz		320		pF
C _{OSS}	Output Capacitance			106		pF
C _{RSS}	Reverse Transfer Capacitance			92		pF
SWITCHING CHARACTERISTICS^b						
t _{D(ON)}	Turn-On Delay Time	V _{DD} =16V I _D =3.6A		13.5		ns
t _r	Rise Time			30		ns
t _{D(OFF)}	Turn-Off Delay Time	V _{GS} =4.0V R _{GEN} = 6 ohm		19		ns
t _f	Fall Time			13.5		ns
Q _g	Total Gate Charge	V _{DS} =16V, I _D =7.2A, V _{GS} =4.0V		7.2		nC
Q _{gs}	Gate-Source Charge			1.4		nC
Q _{gd}	Gate-Drain Charge			4		nC
DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS						
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _S =7.2A		0.89	1.2	V

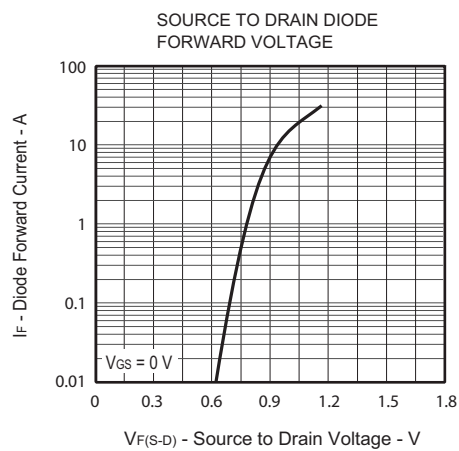
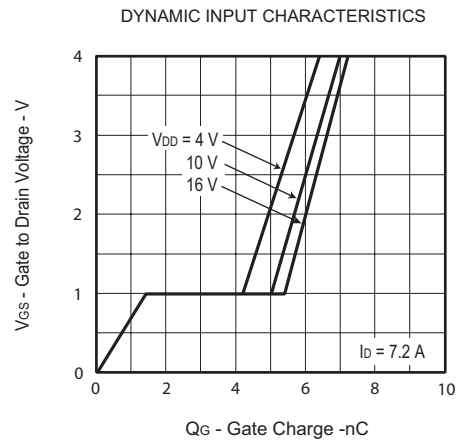
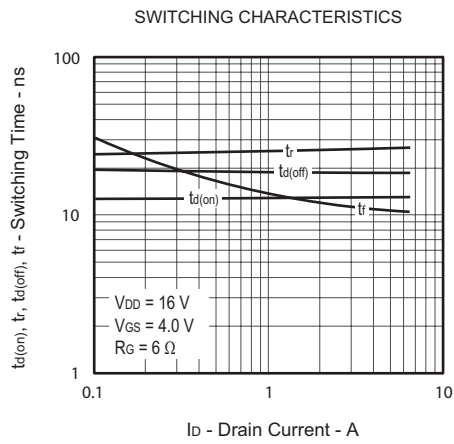
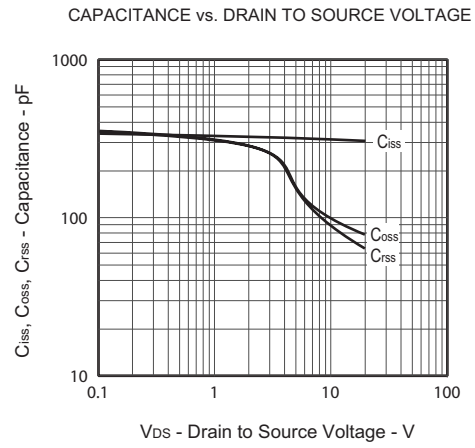
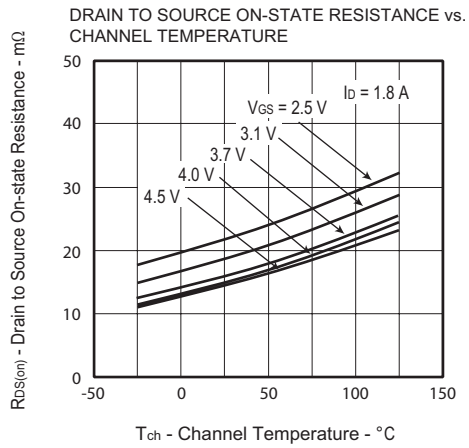
Notes

- a. Pulse Test: Pulse Width ≤ 10μs, 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.

Jul, 18, 2014

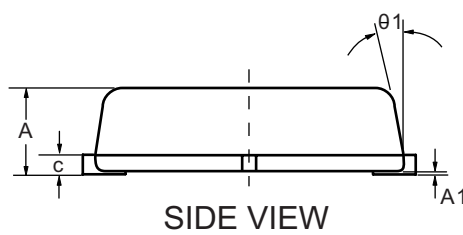
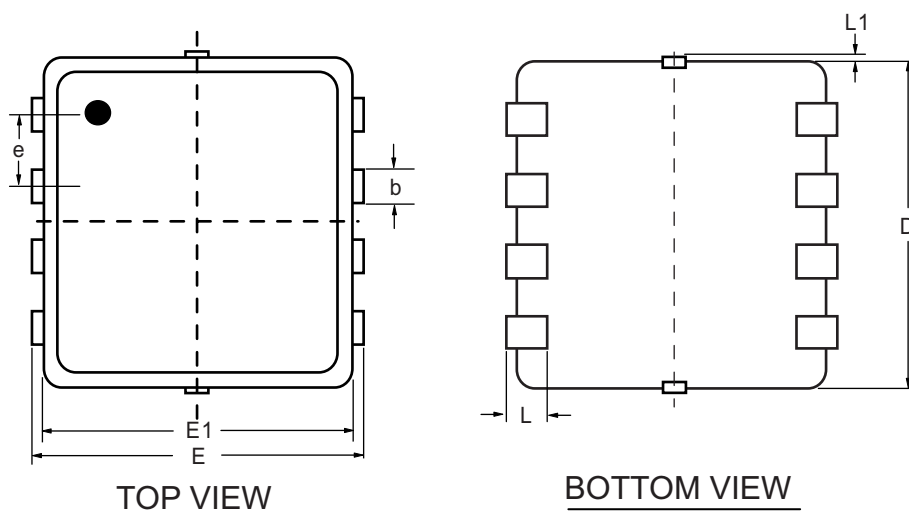






PACKAGE OUTLINE DIMENSIONS

S mini 8



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
$\theta 1$	0°	10°	12°

TOP MARKING DEFINITION

