

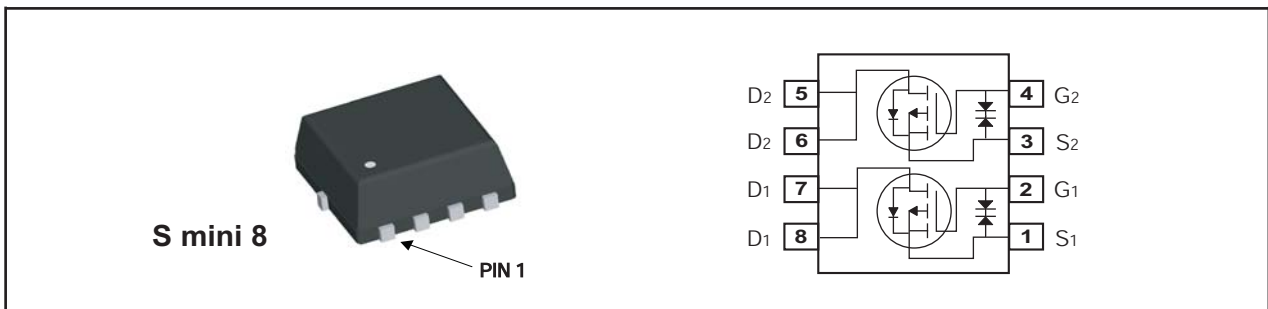


## Dual P-Channel Enhancement Mode Field Effect Transistor

PRODUCT SUMMARY		
V <sub>DS</sub>	I <sub>D</sub>	R <sub>DS(ON)</sub> (mΩ) Max
-20V	-5A	38 @ V <sub>GS</sub> =4.5V
		39 @ V <sub>GS</sub> =4.0V
		50 @ V <sub>GS</sub> =3.1V
		58 @ V <sub>GS</sub> =2.5V
		98 @ V <sub>GS</sub> =1.8V

### FEATURES

- Super high dense cell design for low R<sub>DS(ON)</sub>.
- Rugged and reliable.
- Surface Mount Package.
- ESD Protected.



### ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub>=25°C unless otherwise noted)

Symbol	Parameter	Limit	Units
V <sub>DS</sub>	Drain-Source Voltage	-20	V
V <sub>GS</sub>	Gate-Source Voltage	±10	V
I <sub>D</sub>	Drain Current-Continuous <sup>c</sup>	T <sub>A</sub> =25°C	-5
		T <sub>A</sub> =70°C	-3.6
I <sub>DM</sub>	-Pulsed <sup>a c</sup>	-40	A
P <sub>D</sub>	Maximum Power Dissipation	T <sub>A</sub> =25°C	1.32
		T <sub>A</sub> =70°C	0.84
T <sub>J</sub> , T <sub>STG</sub>	Operating Junction and Storage Temperature Range	-55 to 150	°C

### THERMAL CHARACTERISTICS

R <sub>θ JA</sub>	Thermal Resistance, Junction-to-Ambient	95	°C/W
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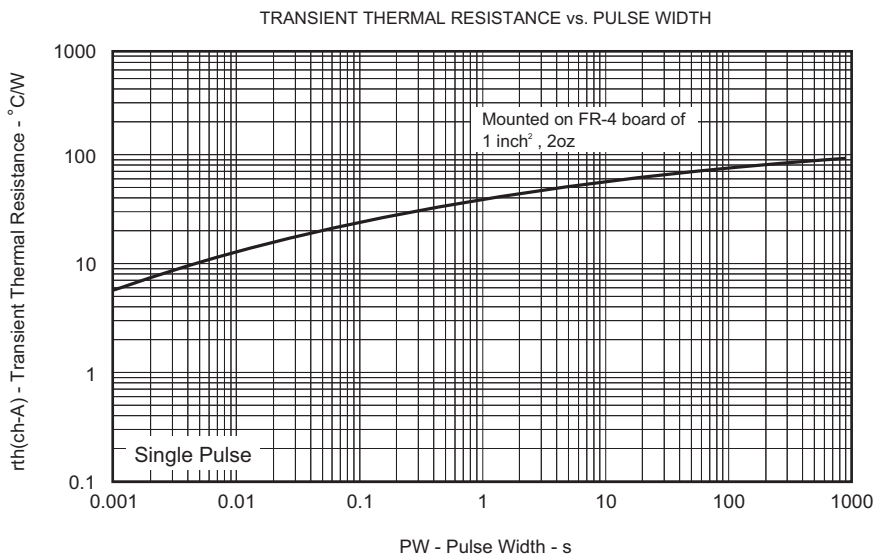
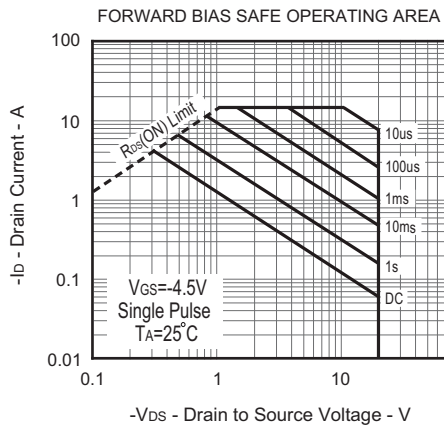
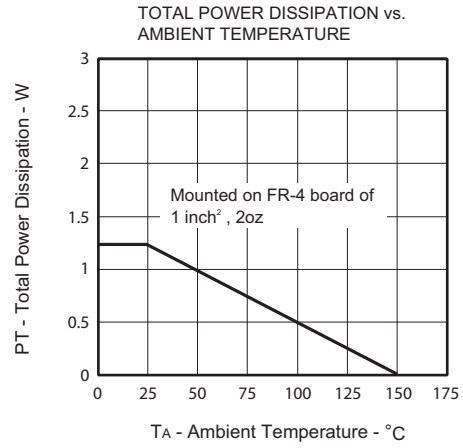
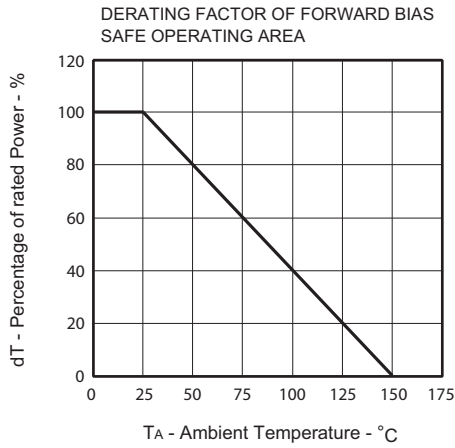
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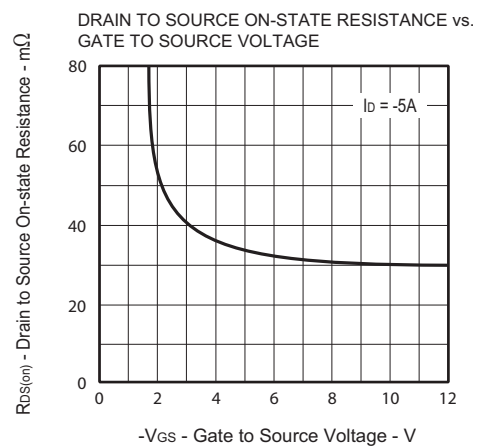
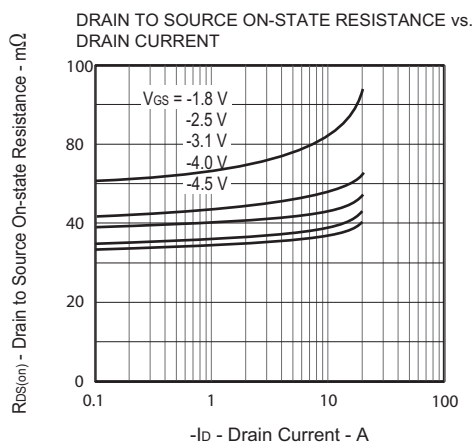
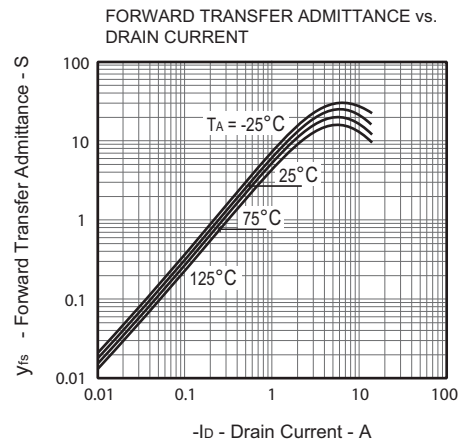
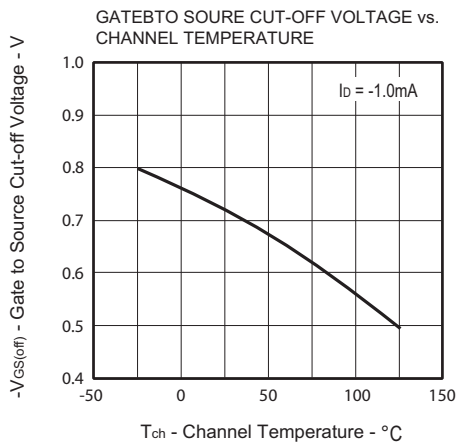
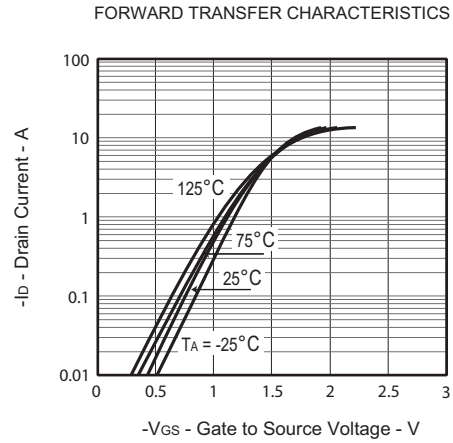
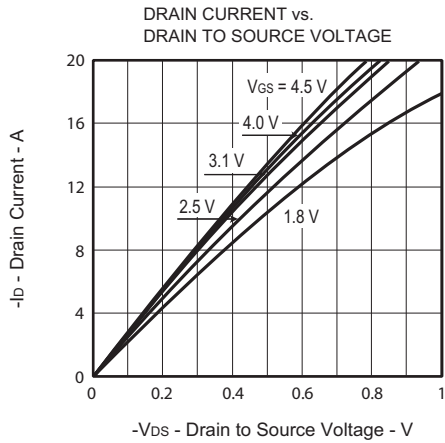
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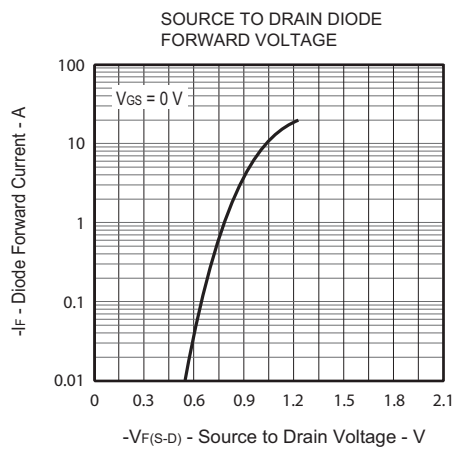
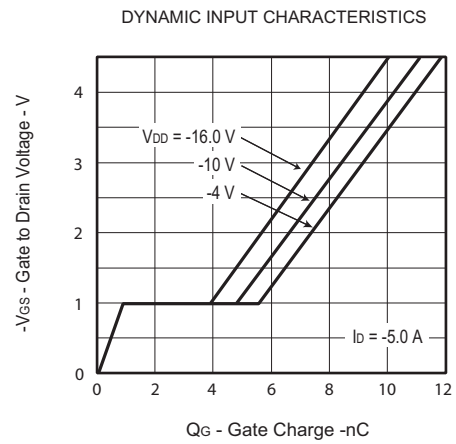
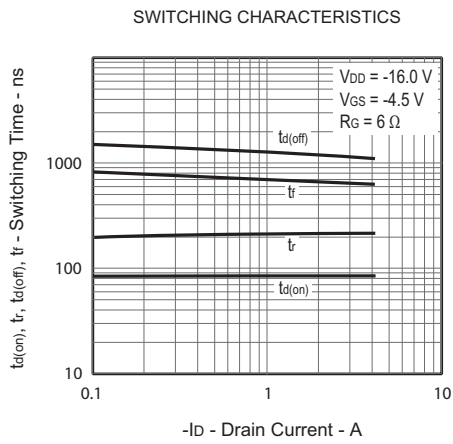
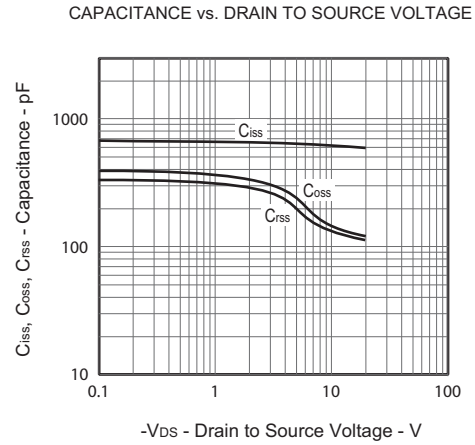
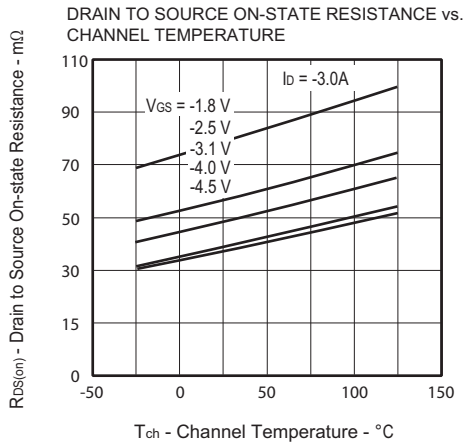
## ELECTRICAL CHARACTERISTICS (T<sub>A</sub>=25°C unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
<b>OFF CHARACTERISTICS</b>						
BV <sub>DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>D</sub> =-250μA	-20			V
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> =-16V, V <sub>GS</sub> =0V			1	μA
I <sub>GSS</sub>	Gate-Body Leakage Current	V <sub>GS</sub> = ±10V, V <sub>DS</sub> =0V			±10	μA
<b>ON CHARACTERISTICS</b>						
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =-1mA	-0.4	-0.7	-1.3	V
R <sub>DS(ON)</sub>	Drain-Source On-State Resistance	V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-3A		30	38	m ohm
		V <sub>GS</sub> =-4.0V, I <sub>D</sub> =-3A		31	39	m ohm
		V <sub>GS</sub> =-3.1V, I <sub>D</sub> =-1.5A		41	50	m ohm
		V <sub>GS</sub> =-2.5V, I <sub>D</sub> =-1.5A		47	58	m ohm
		V <sub>GS</sub> =-1.8V, I <sub>D</sub> =-0.5A		69	98	m ohm
g <sub>FS</sub>	Forward Transconductance	V <sub>DS</sub> =-10V, I <sub>D</sub> =-3A		10		S
<b>DYNAMIC CHARACTERISTICS <sup>b</sup></b>						
C <sub>ISS</sub>	Input Capacitance	V <sub>DS</sub> =-10V, V <sub>GS</sub> =0V f=1.0MHz		613		pF
C <sub>OSS</sub>	Output Capacitance			159		pF
C <sub>RSS</sub>	Reverse Transfer Capacitance			141		pF
<b>SWITCHING CHARACTERISTICS <sup>b</sup></b>						
t <sub>D(ON)</sub>	Turn-On Delay Time	V <sub>DD</sub> =-16V I <sub>D</sub> =-3A V <sub>GS</sub> =-4.5V R <sub>GEN</sub> = 6 ohm		85		ns
t <sub>r</sub>	Rise Time			225		ns
t <sub>D(OFF)</sub>	Turn-Off Delay Time			1310		ns
t <sub>f</sub>	Fall Time			605		ns
Q <sub>g</sub>	Total Gate Charge				11.8	
Q <sub>gs</sub>	Gate-Source Charge	V <sub>DS</sub> =-16V, I <sub>D</sub> =-5A, V <sub>GS</sub> =-4.5V		0.85		nC
Q <sub>gd</sub>	Gate-Drain Charge			4.7		nC
<b>DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS</b>						
V <sub>SD</sub>	Diode Forward Voltage	V <sub>GS</sub> =0V, I <sub>S</sub> =-5A		-0.8	-1.2	V
<b>Notes</b>						
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 inch <sup>2</sup> , 2oz copper.						

Nov, 16, 2023

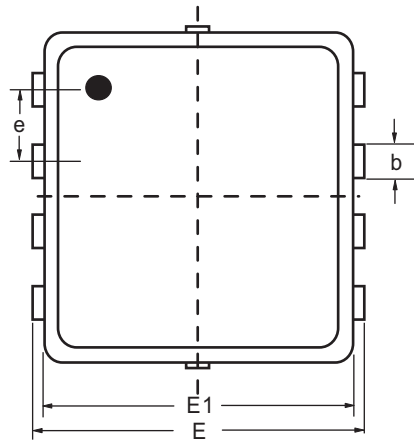




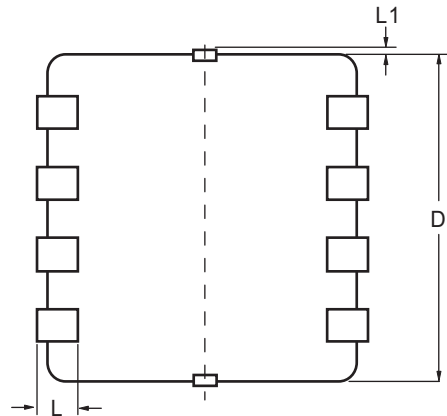


## PACKAGE OUTLINE DIMENSIONS

**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
θ1	0°	10°	12°

## TOP MARKING DEFINITION

