

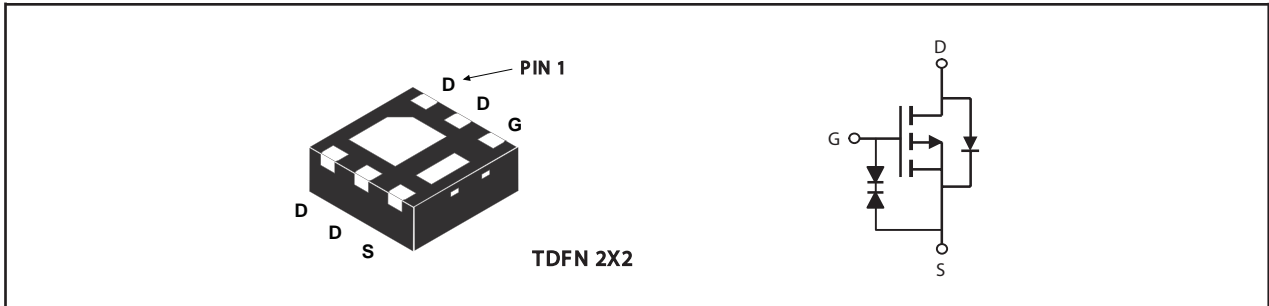


## P-Channel Enhancement Mode Field Effect Transistor

PRODUCT SUMMARY		
V <sub>DSS</sub>	I <sub>D</sub>	R <sub>DS(ON)</sub> (mΩ) Max
-20V	-4.5A	47 @ V <sub>GS</sub> =-4.5V
		48 @ V <sub>GS</sub> =-4.0V
		50 @ V <sub>GS</sub> =-3.7V
		56 @ V <sub>GS</sub> =-3.1V
		64 @ V <sub>GS</sub> =-2.5V

### 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>a d</sup>	T <sub>A</sub> =25°C	-4.5
		T <sub>A</sub> =70°C	-3.6
I <sub>DM</sub>	-Pulsed <sup>b</sup>	-23	A
P <sub>D</sub>	Maximum Power Dissipation <sup>a</sup>	T <sub>A</sub> =25°C	1.67
		T <sub>A</sub> =70°C	1.07
T <sub>J</sub> , T <sub>STG</sub>	Operating Junction and Storage Temperature Range	-55 to 150	°C

### THERMAL CHARACTERISTICS

R <sub>θJA</sub>	Thermal Resistance, Junction-to-Ambient	75	°C/W
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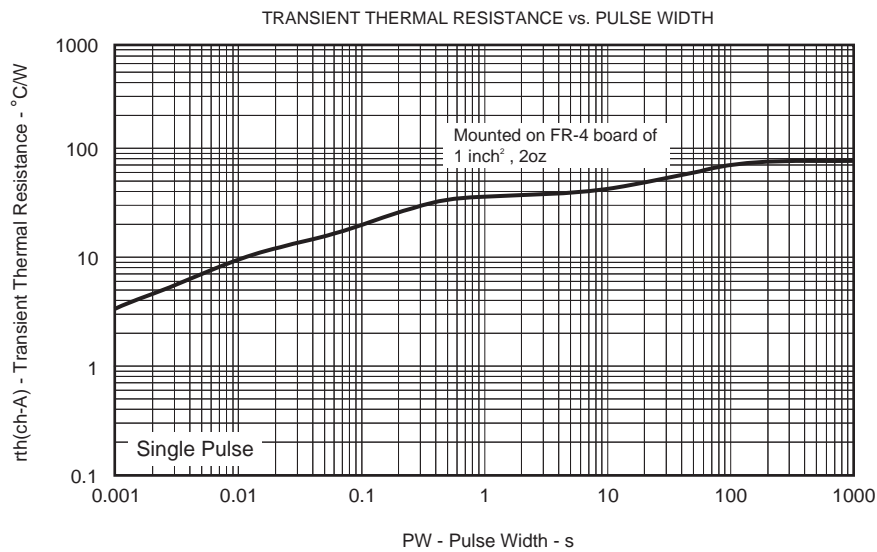
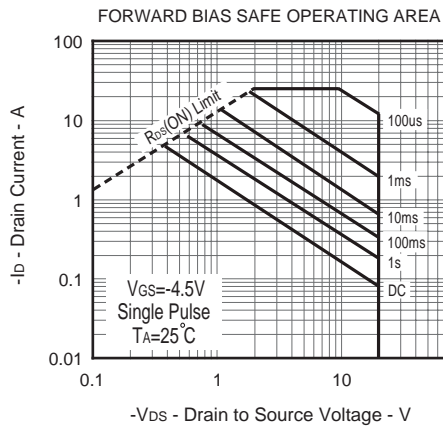
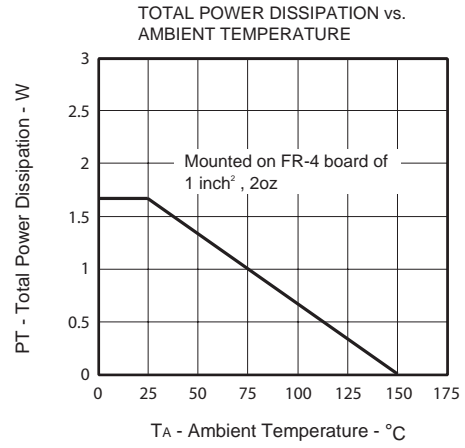
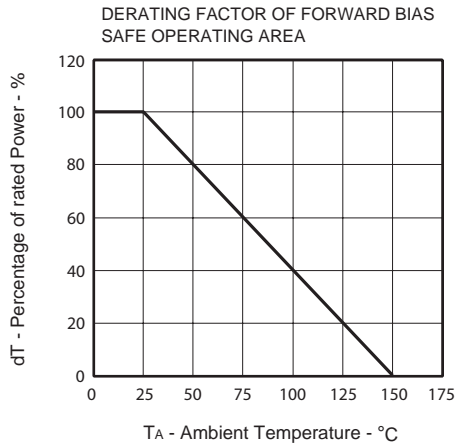
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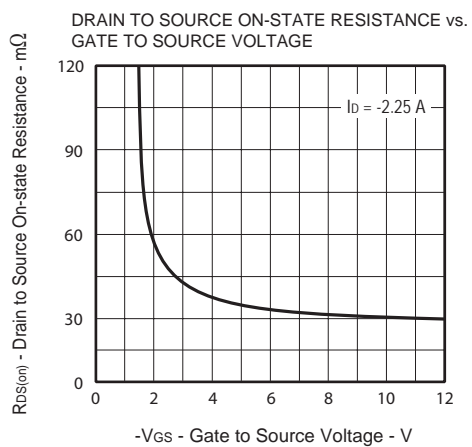
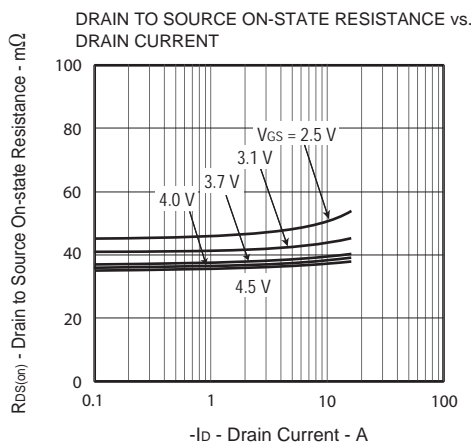
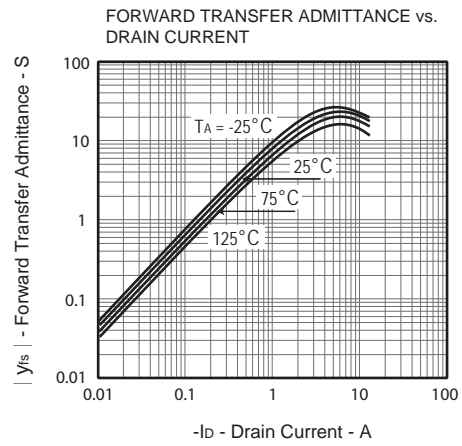
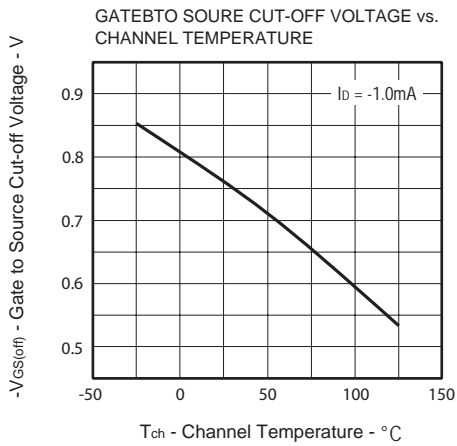
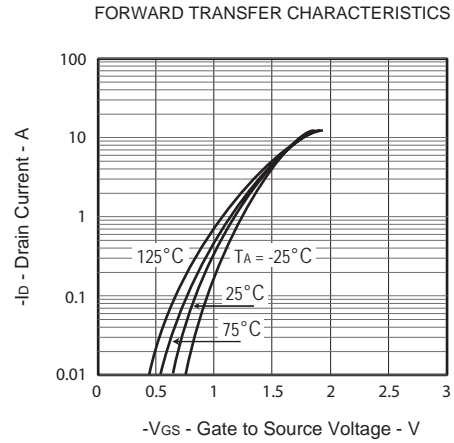
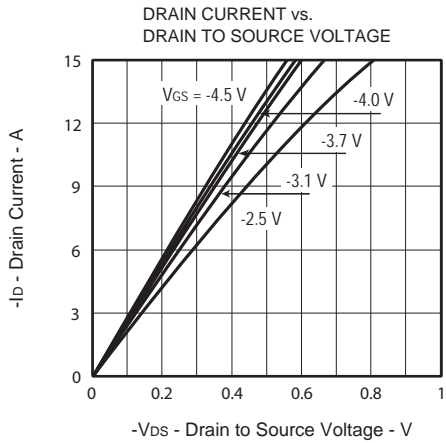
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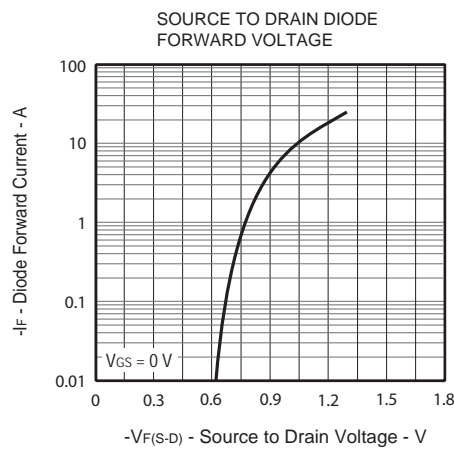
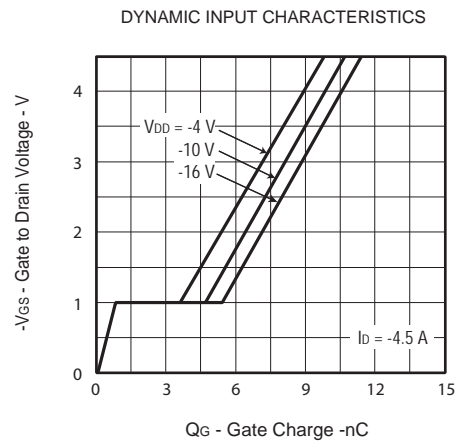
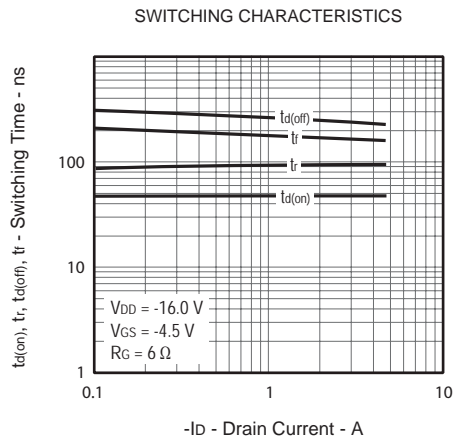
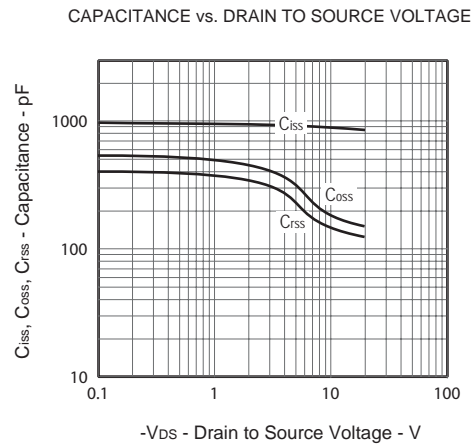
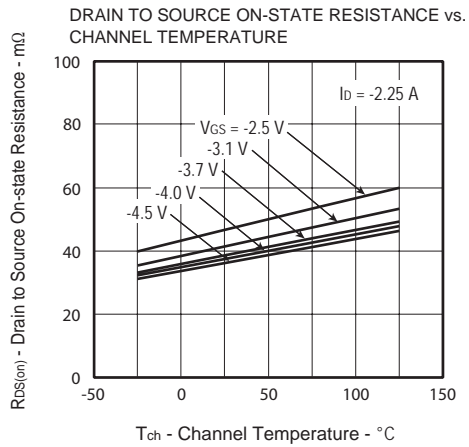
## ELECTRICAL CHARACTERISTICS (T<sub>A</sub>=25°C unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
<b>OFF CHARACTERISTICS</b>						
BV <sub>bss</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V , I <sub>D</sub> =-250uA	-20			V
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> =-16V , V <sub>GS</sub> =0V			-1	uA
I <sub>GSS</sub>	Gate-Body Leakage Current	V <sub>GS</sub> = ±10V , V <sub>DS</sub> =0V			±10	uA
<b>ON CHARACTERISTICS</b>						
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =-1.0mA	-0.5	-0.75	-1.5	V
R <sub>DS(ON)</sub>	Drain-Source On-State Resistance	V <sub>GS</sub> =-4.5V , I <sub>D</sub> =-2.25A	27	36	47	m ohm
		V <sub>GS</sub> =-4.0V , I <sub>D</sub> =-2.25A	28	37	48	m ohm
		V <sub>GS</sub> =-3.7V , I <sub>D</sub> =-2.25A	29	38	50	m ohm
		V <sub>GS</sub> =-3.1V , I <sub>D</sub> =-2.25A	32	42	56	m ohm
		V <sub>GS</sub> =-2.5V , I <sub>D</sub> =-2.25A	36	47	64	m ohm
g <sub>FS</sub>	Forward Transconductance	V <sub>DS</sub> =-5V , I <sub>D</sub> =-2.25A		13		S
<b>DYNAMIC CHARACTERISTICS <sup>c</sup></b>						
C <sub>ISS</sub>	Input Capacitance	V <sub>DS</sub> =-10V, V <sub>GS</sub> =0V f=1.0MHz		880		pF
C <sub>OSS</sub>	Output Capacitance			174		pF
C <sub>RSS</sub>	Reverse Transfer Capacitance			134		pF
<b>SWITCHING CHARACTERISTICS <sup>c</sup></b>						
t <sub>D(ON)</sub>	Turn-On Delay Time	V <sub>DD</sub> =-16V I <sub>D</sub> =-2.25A V <sub>GS</sub> =-4.5V R <sub>GEN</sub> = 6 ohm		45		ns
t <sub>r</sub>	Rise Time			82		ns
t <sub>D(OFF)</sub>	Turn-Off Delay Time			225		ns
t <sub>f</sub>	Fall Time			148		ns
Q <sub>g</sub>	Total Gate Charge				11.4	
Q <sub>gs</sub>	Gate-Source Charge	V <sub>DS</sub> =-16V, I <sub>D</sub> =-4.5A, V <sub>GS</sub> =4.5V		0.8		nC
Q <sub>gd</sub>	Gate-Drain Charge			4.6		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> =-4.5A		-0.92	-1.2	V
<b>Notes</b>						
a.Surface Mounted on FR4 Board, t ≤ 10sec.						
b.Pulse Test:Pulse Width < 10us, Duty Cycle < 1%.						
c.Guaranteed by design, not subject to production testing.						
d.Drain current limited by maximum junction temperature.						

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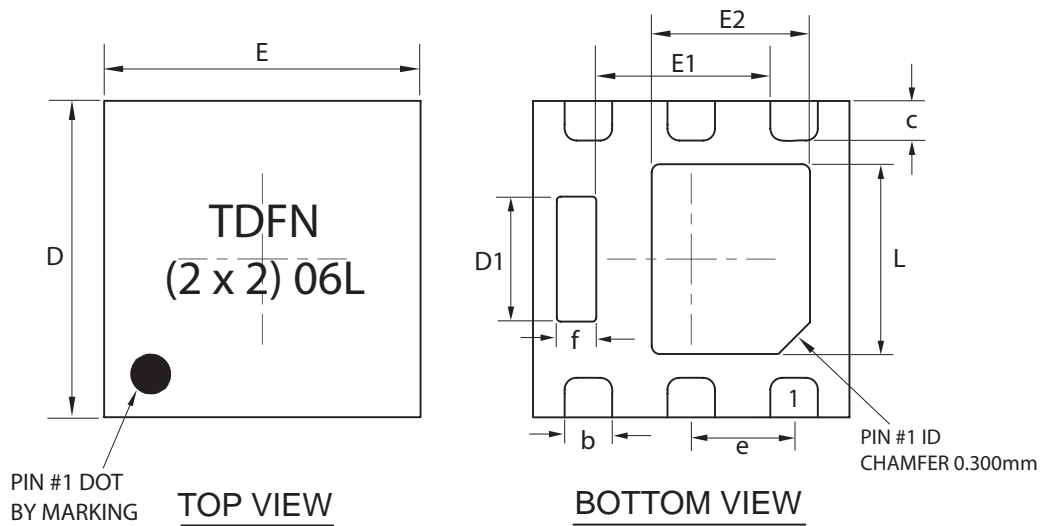






## PACKAGE OUTLINE DIMENSIONS

### TDFN 2x2-6L



SYMBOLS	MILLIMETERS		
	MIN	NOM	MAX
A	0.550	0.600	0.650
A1	0.000	—	0.050
b	0.250	0.300	0.350
c	0.200	0.250	0.300
D	1.950	2.000	2.050
D1	0.740	0.790	0.840
E	1.950	2.000	2.050
E1	1.100 REF.		
E2	0.950	1.000	1.050
e	0.650 BSC.		
f	0.200	0.250	0.300
L	1.150	1.200	1.250
L1	0.144	0.152	0.160