



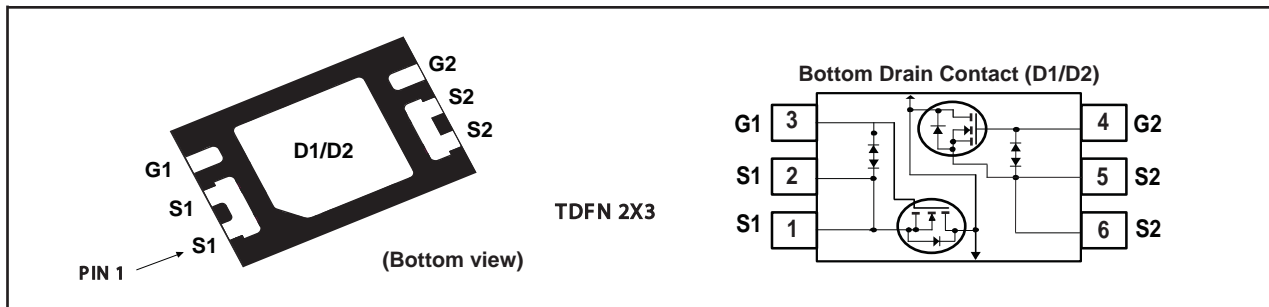
## Dual N-Channel Enhancement Mode Field Effect Transistor

### PRODUCT SUMMARY

V <sub>DSS</sub>	I <sub>D</sub>	R <sub>DS(ON)</sub> (mΩ) Max
20V	11A	7.2 @ V <sub>GS</sub> =4.5V
		7.5 @ V <sub>GS</sub> =4.0V
		8.2 @ V <sub>GS</sub> =3.7V
		9.0 @ V <sub>GS</sub> =3.1V
		10.2 @ 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	±12	V
I <sub>D</sub>	Drain Current-Continuous <sup>c</sup>	T <sub>A</sub> =25°C	11
		T <sub>A</sub> =70°C	8.8
I <sub>DM</sub>	-Pulsed <sup>a c</sup>	70	A
P <sub>D</sub>	Maximum Power Dissipation	T <sub>A</sub> =25°C	1.56
		T <sub>A</sub> =70°C	1.00
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	80	°C/W
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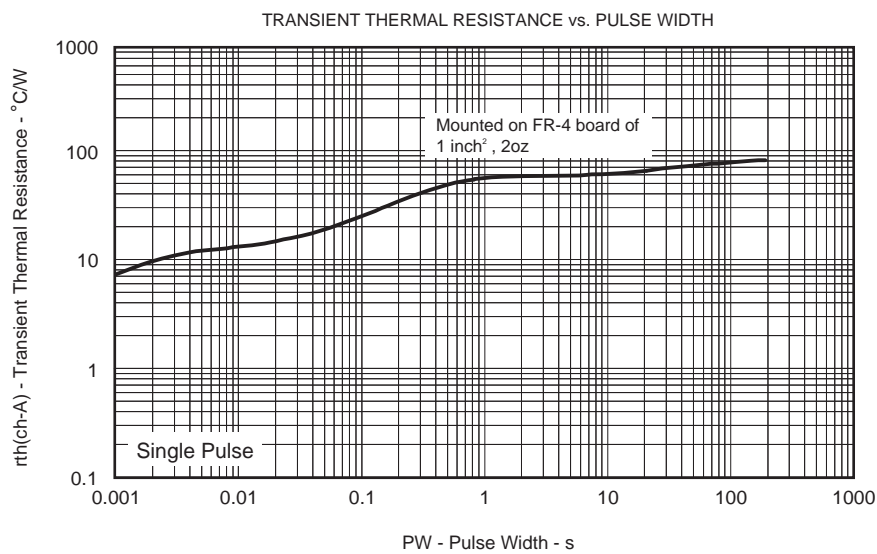
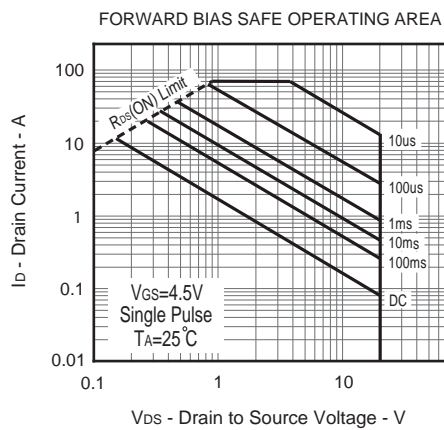
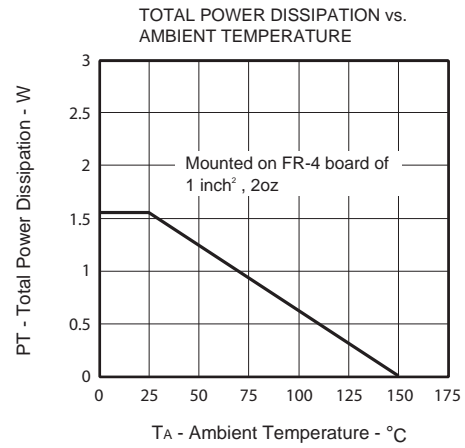
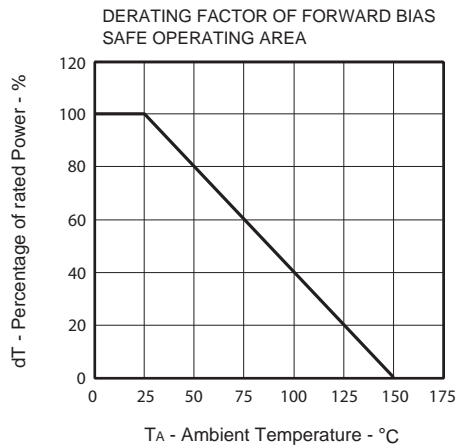
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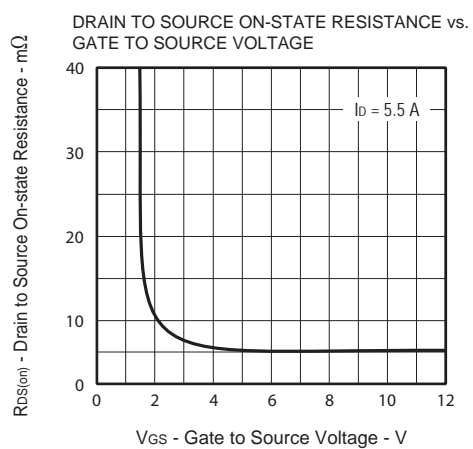
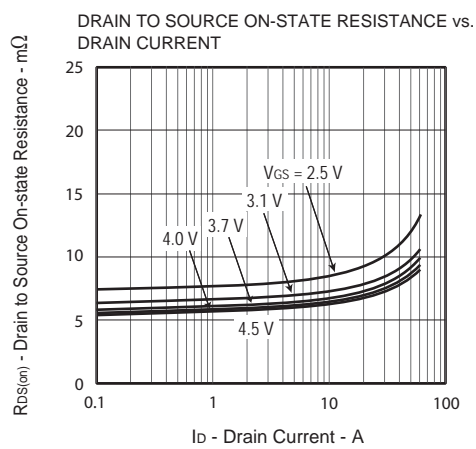
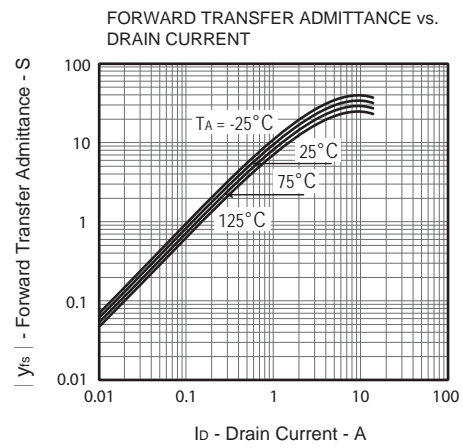
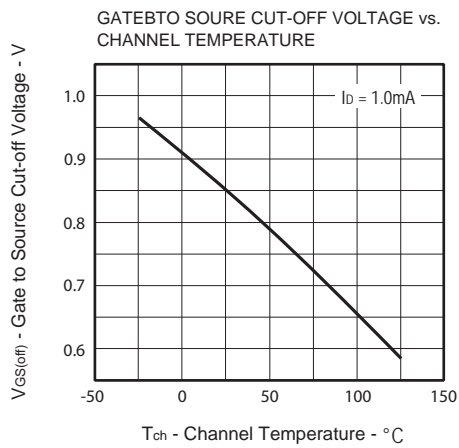
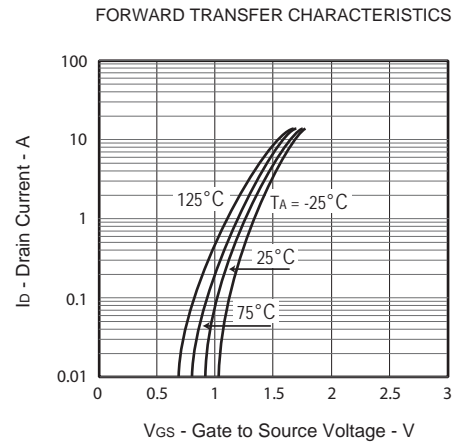
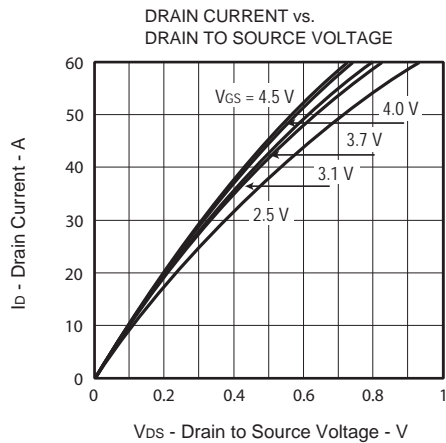
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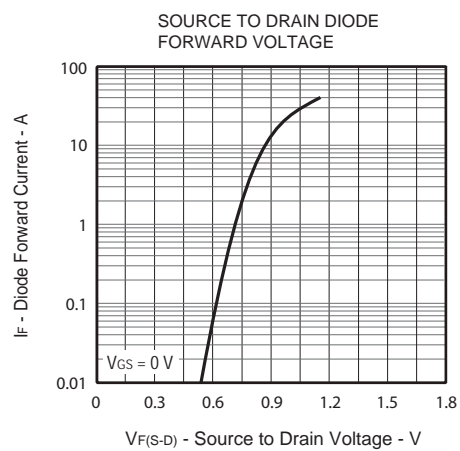
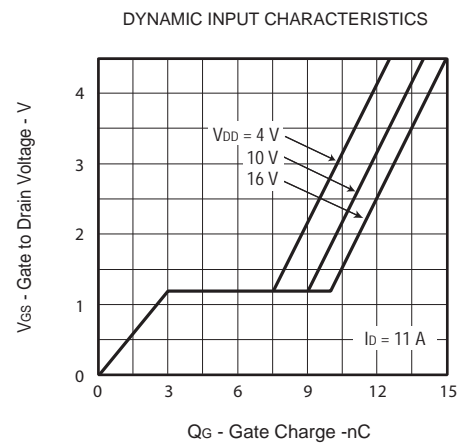
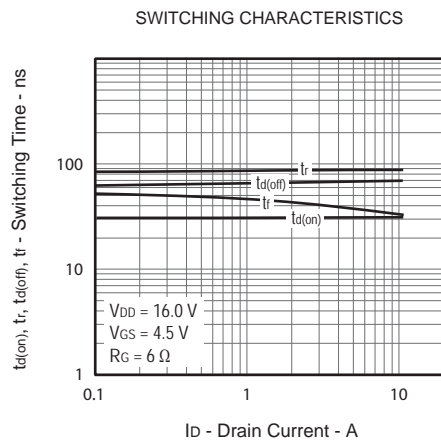
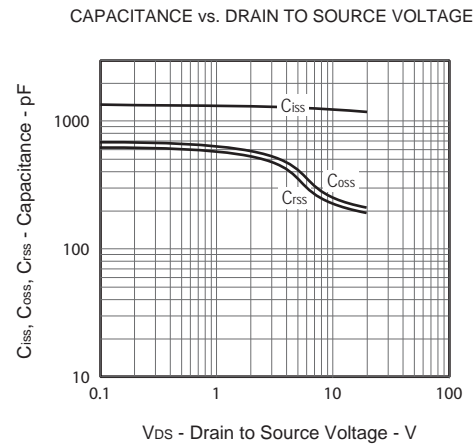
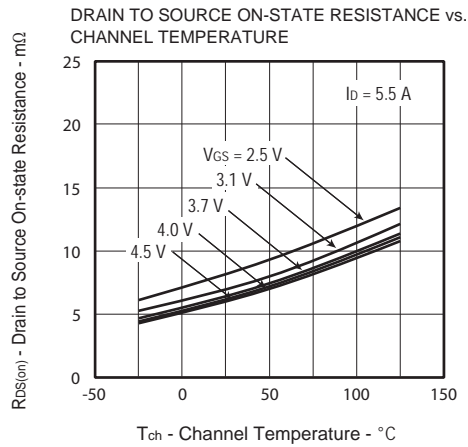
## ELECTRICAL CHARACTERISTICS (T<sub>A</sub>=25°C unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
OFF CHARACTERISTICS						
BV <sub>DSS</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> =18V , V <sub>GS</sub> =0V			1	uA
I <sub>GSS</sub>	Gate-Body Leakage Current	V <sub>GS</sub> = ±12V , V <sub>DS</sub> =0V			±10	uA
ON CHARACTERISTICS						
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =1.0mA	0.5	0.85	1.5	V
R <sub>DS(ON)</sub>	Drain-Source On-State Resistance	V <sub>GS</sub> =4.5V , I <sub>D</sub> =5.5A	4.5	6.0	7.2	m ohm
		V <sub>GS</sub> =4.0V , I <sub>D</sub> =5.5A	4.8	6.2	7.5	m ohm
		V <sub>GS</sub> =3.7V , I <sub>D</sub> =5.5A	5.0	6.5	8.2	m ohm
		V <sub>GS</sub> =3.1V , I <sub>D</sub> =5.5A	5.3	7.0	9.0	m ohm
		V <sub>GS</sub> =2.5V , I <sub>D</sub> =5.5A	6.0	8.2	10.2	m ohm
g <sub>FS</sub>	Forward Transconductance	V <sub>DS</sub> =5V , I <sub>D</sub> =5.5A		38		S
DYNAMIC CHARACTERISTICS <sup>b</sup>						
C <sub>ISS</sub>	Input Capacitance	V <sub>DS</sub> =10V,V <sub>GS</sub> =0V f=1.0MHz		1310		pF
C <sub>OSS</sub>	Output Capacitance			264		pF
C <sub>RSS</sub>	Reverse Transfer Capacitance			235		pF
SWITCHING CHARACTERISTICS <sup>b</sup>						
t <sub>D(ON)</sub>	Turn-On Delay Time	V <sub>DD</sub> =16V I <sub>D</sub> =5.5A V <sub>GS</sub> =4.5V R <sub>GEN</sub> = 6 ohm		31		ns
t <sub>r</sub>	Rise Time			87		ns
t <sub>D(OFF)</sub>	Turn-Off Delay Time			69		ns
t <sub>f</sub>	Fall Time			37		ns
Q <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> =16V,I <sub>D</sub> =11A, V <sub>GS</sub> =4.5V		15		nC
Q <sub>gs</sub>	Gate-Source Charge			3		nC
Q <sub>gd</sub>	Gate-Drain Charge			7		nC
DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS						
V <sub>SD</sub>	Diode Forward Voltage	V <sub>GS</sub> =0V,I <sub>S</sub> =11A		0.87	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 inch <sup>2</sup> , 2oz.						

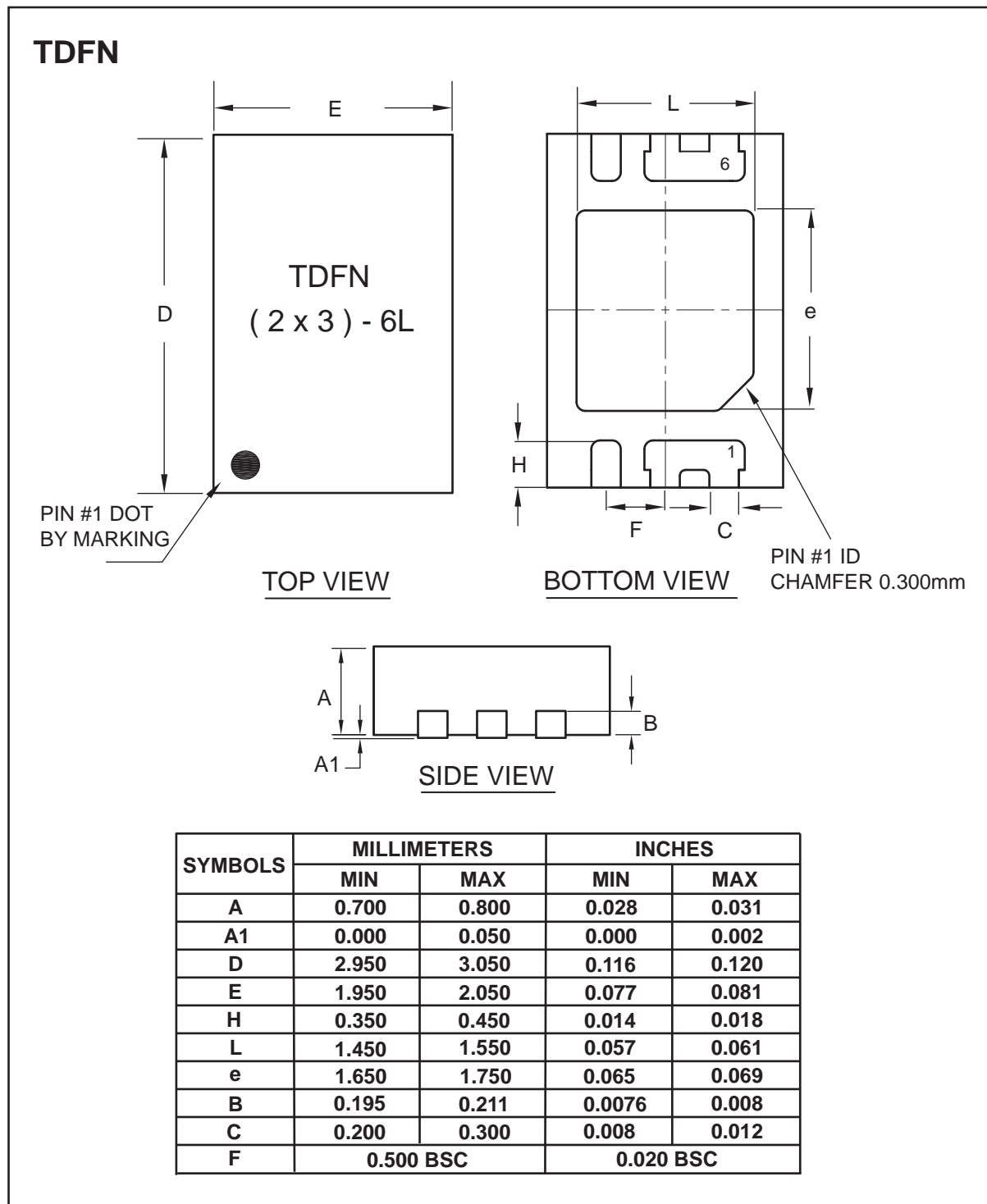
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## PACKAGE OUTLINE DIMENSIONS



## TOP MARKING DEFINITION

### TDFN 2x3-6L

