



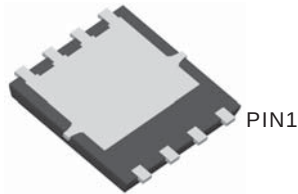
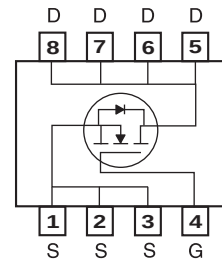
N-Channel Logic Level Enhancement Mode Field Effect Transistor

PRODUCT SUMMARY

V _{DSS}	I _D	R _{DS(ON)} (mΩ) Max
60V	11A	12.5 @ V _{GS} =10V
		19.0 @ V _{GS} =4.5V

FEATURES

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

**DFN 5x6**

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

Symbol	Parameter	Limit	Units
V _{DS}	Drain-Source Voltage	60	V
V _{GS}	Gate-Source Voltage	±20	V
I _D	Drain Current-Continuous ^c	T _A =25°C	11
		T _A =70°C	8.8
I _{DM}	-Pulsed ^{a c}	39	A
E _{AS}	Single Pulse Avalanche Energy ^d	256	mJ
P _D	Maximum Power Dissipation	T _A =25°C	3.1
		T _A =70°C	2
T _J , T _{STG}	Operating Junction and Storage Temperature Range	-55 to 150	°C

THERMAL CHARACTERISTICS

R _{θJA}	Thermal Resistance, Junction-to-Ambient	40	°C/W
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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	60			V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =48V , V _{GS} =0V			1	uA
I _{GSS}	Gate-Body Leakage Current	V _{GS} = ±20V , V _{DS} =0V			±100	nA
ON CHARACTERISTICS						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250uA	1	2	3	V
R _{DS(ON)}	Drain-Source On-State Resistance	V _{GS} =10V , I _D =5.5A		10	12.5	m ohm
		V _{GS} =4.5V , I _D =4.5A		14	19.0	m ohm
g _{FS}	Forward Transconductance	V _{DS} =10V , I _D =5.5A		22		S
DYNAMIC CHARACTERISTICS ^b						
C _{iss}	Input Capacitance	V _{DS} =25V,V _{GS} =0V f=1.0MHz		2525		pF
C _{oss}	Output Capacitance			236		pF
C _{RSS}	Reverse Transfer Capacitance			195		pF
SWITCHING CHARACTERISTICS ^b						
t _{D(ON)}	Turn-On Delay Time	V _{DD} =30V I _D =1A V _{GS} =10V R _{GEN} = 6 ohm		49		ns
t _r	Rise Time			63		ns
t _{D(OFF)}	Turn-Off Delay Time			122		ns
t _f	Fall Time			25		ns
Q _g	Total Gate Charge	V _{DS} =30V,I _D =5.5A,V _{GS} =10V		39		nC
		V _{DS} =30V,I _D =5.5A,V _{GS} =4.5V		20		nC
Q _{gs}	Gate-Source Charge	V _{DS} =30V,I _D =5.5A, V _{GS} =10V		4		nC
Q _{gd}	Gate-Drain Charge			11		nC
DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS						
V _{SD}	Diode Forward Voltage	V _{GS} =0V,I _S =2A		0.75	1.3	V

Notes

- Pulse Test: Pulse Width ≤ 10us, Duty Cycle ≤ 1%.
- Guaranteed by design, not subject to production testing.
- Drain current limited by maximum junction temperature.
- Starting T_J=25°C, L=0.5mH, V_{DD} = 30V. (See Figure13)
- Mounted on FR4 Board of 1 inch², 2oz.

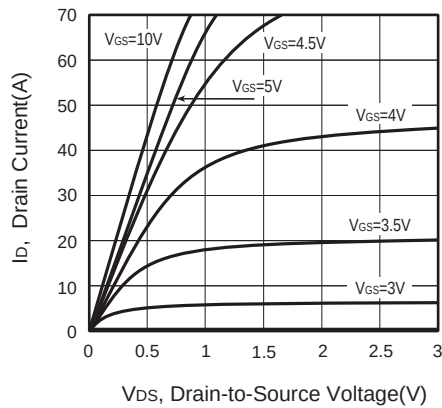


Figure 1. Output Characteristics

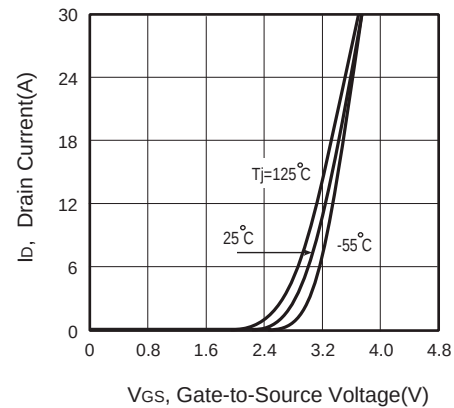


Figure 2. Transfer Characteristics

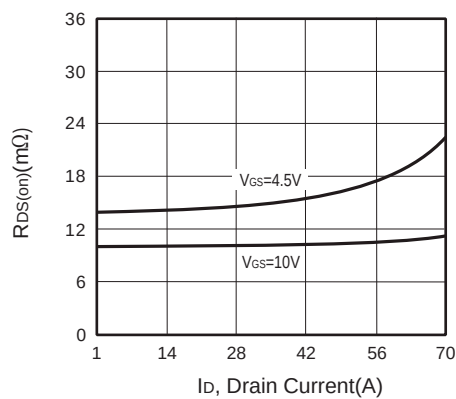


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

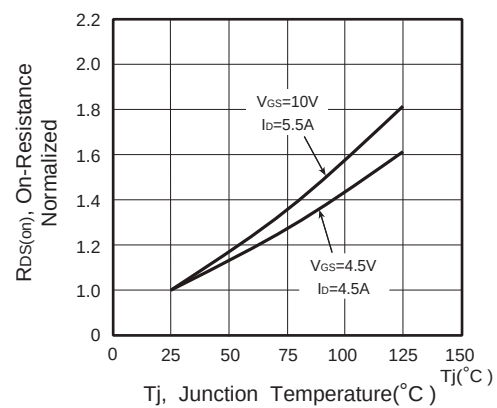


Figure 4. On-Resistance Variation with Drain Current and Temperature

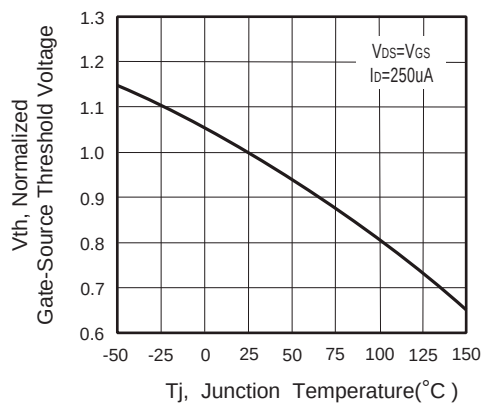


Figure 5. Gate Threshold Variation with Temperature

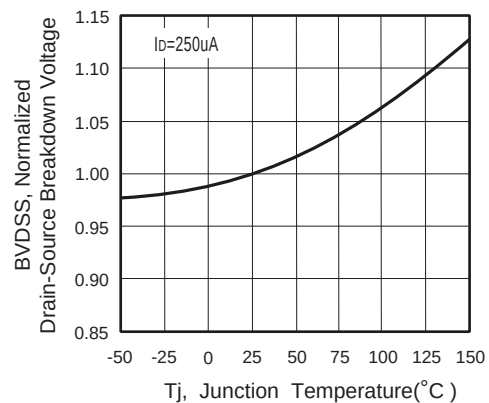
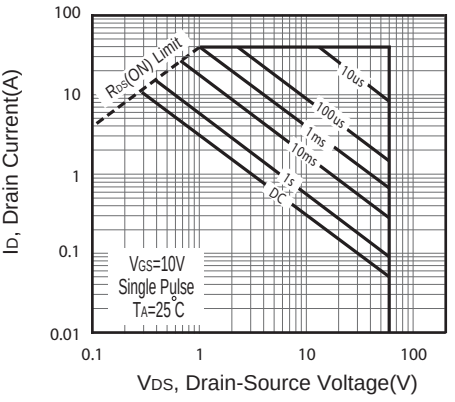
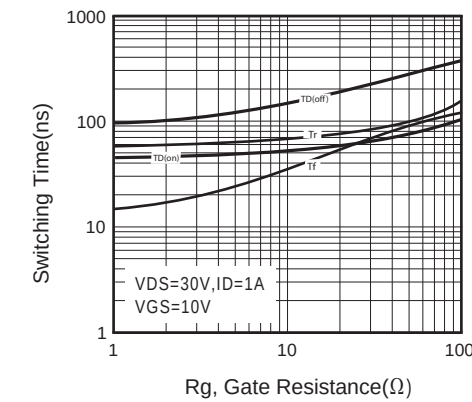
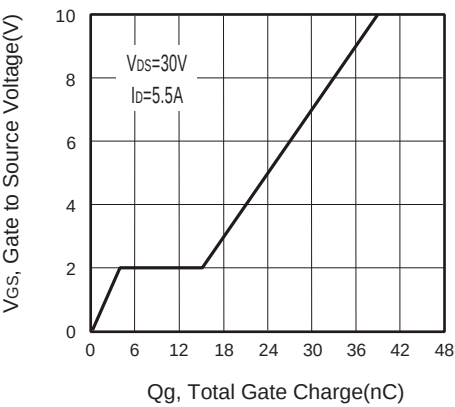
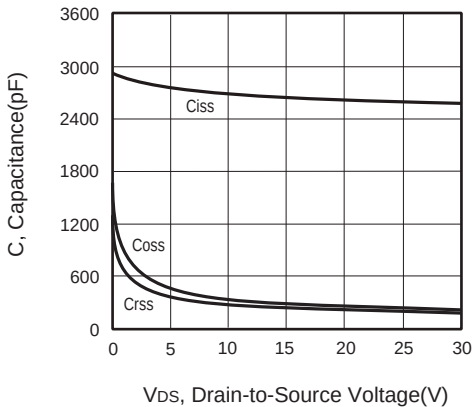
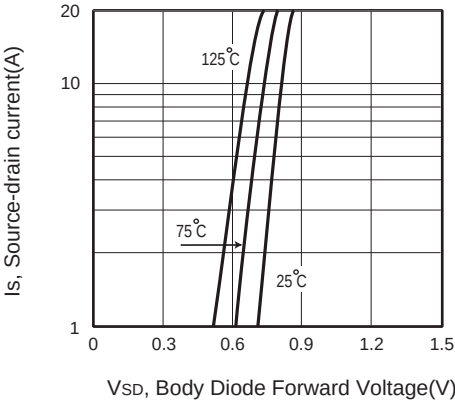
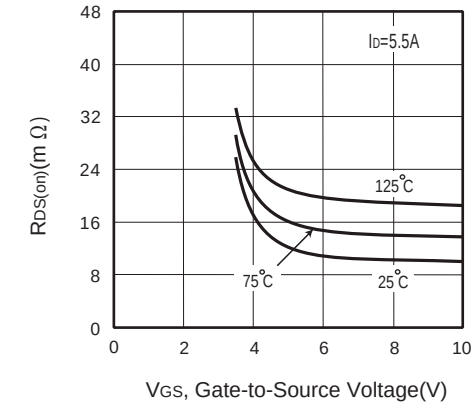
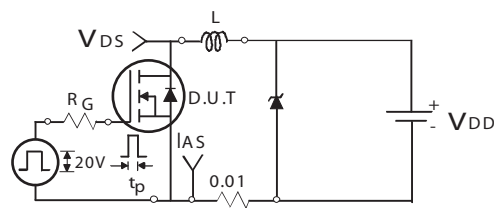


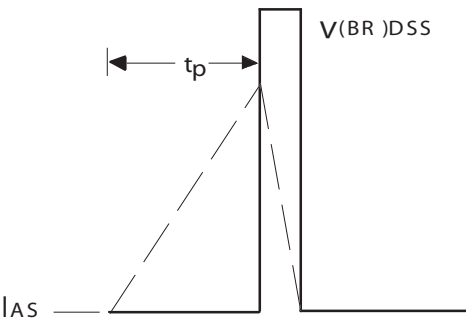
Figure 6. Breakdown Voltage Variation with Temperature





Unclamped Inductive Test Circuit

Figure 13a.



Unclamped Inductive Waveforms

Figure 13b.

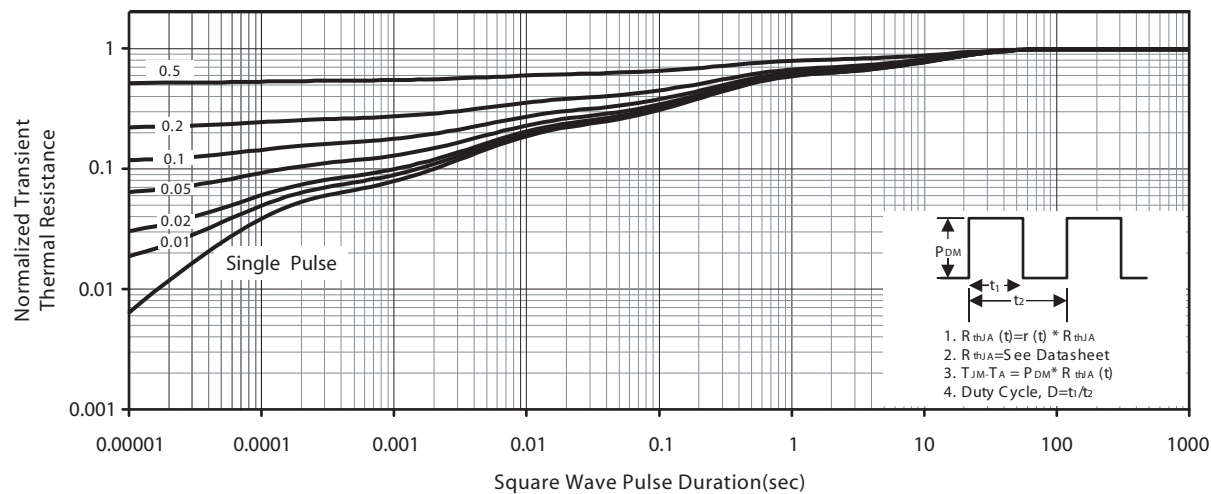
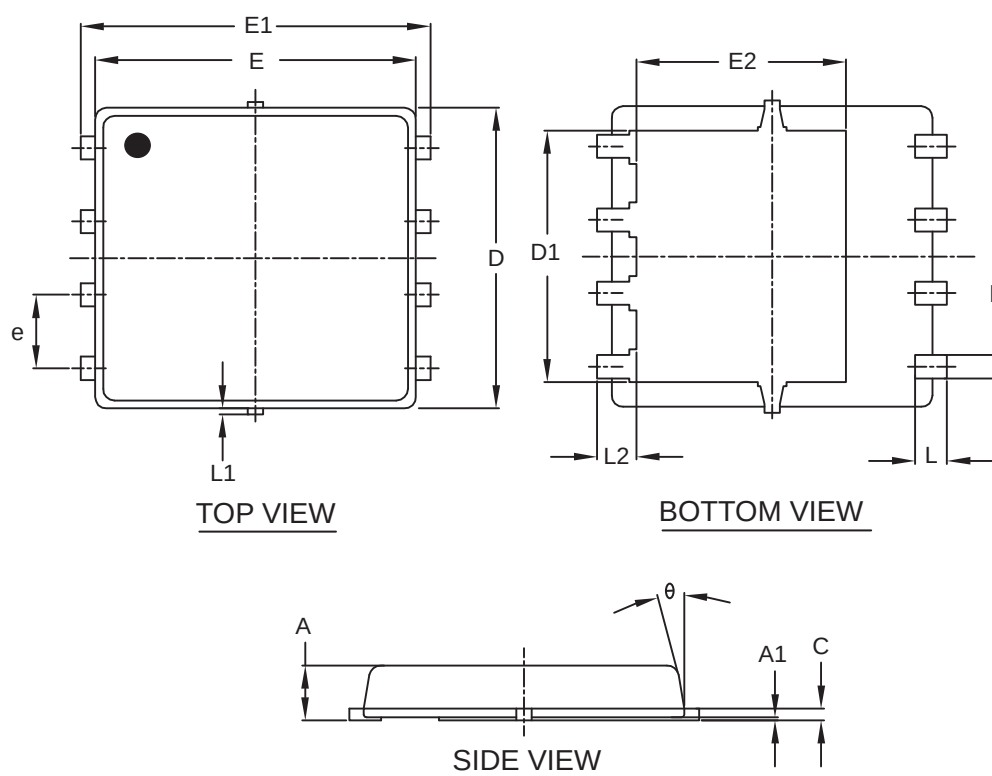


Figure 13. Normalized Thermal Transient Impedance Curve

PACKAGE OUTLINE DIMENSIONS

DFN 5x6-8L



SYMBOLS	MILLIMETERS		
	MIN	NOM	MAX
A	0.85	0.95	1.00
A1	0.00	—	0.05
b	0.30	0.40	0.50
c	0.15	0.20	0.25
D	5.20 BSC		
D1	4.35 BSC		
E	5.55 BSC		
E1	6.05 BSC		
E2	3.62 BSC		
e	1.27 BSC		
L	0.45	0.55	0.65
L1	0.00	—	0.15
L2	0.68 REF		
θ	0°	—	10°

TOP MARKING DEFINITION

