

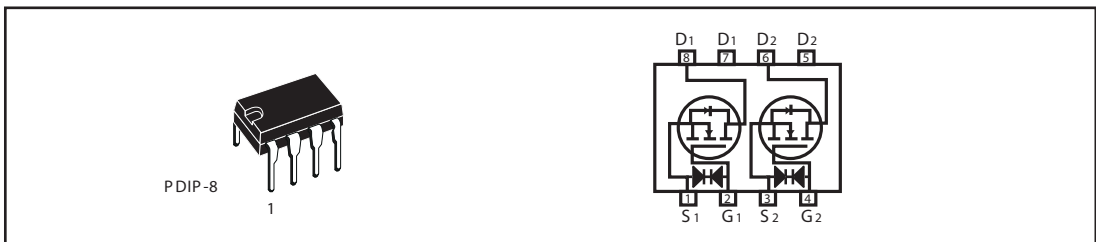


Dual N-Channel Enhancement Mode Field Effect Transistor

PRODUCT SUMMARY		
V _{DSS}	I _D	R _{DS(ON)} (mΩ) Max
60V	5.3A	60 @ V _{GS} = 10V 70 @ V _{GS} = 4.5V

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)

Parameter	Symbol	Limit	Unit	
Drain-Source Voltage	V _{DS}	60	V	
Gate-Source Voltage	V _{GS}	±20	V	
Drain Current-Continuous ^a @ T _a	I _D	25°C	5.3	A
		70°C	4.5	A
-Pulsed ^b	I _{DM}	25	A	
Drain-Source Diode Forward Current ^a	I _S	1.7	A	
Maximum Power Dissipation ^a	P _D	T _a =25°C	3	W
		T _a =70°C	2	
Operating Junction and Storage Temperature Range	T _J , T _{STG}	-55 to 150	°C	

THERMAL CHARACTERISTICS

Thermal Resistance, Junction-to-Ambient ^a	R _{θJA}	41.5	°C/W
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ELECTRICAL CHARACTERISTICS (T_A 25°C unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ ^c	Max	Unit
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0V, I _D = 250uA	60			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 48V, V _{GS} = 0V			1	uA
Gate-Body Leakage	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			±10	uA
ON CHARACTERISTICS^b						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250uA	1.0	1.7	3	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} = 10V, I _D = 4.5A		49	60	m ohm
		V _{GS} = 4.5V, I _D = 3A		55	70	m ohm
On-State Drain Current	I _{D(ON)}	V _{DS} = 5V, V _{GS} = 10V	20			A
Forward Transconductance	g _{FS}	V _{DS} = 4.5V, I _D = 4.5A		13		S
DYNAMIC CHARACTERISTICS^c						
Input Capacitance	C _{ISS}	V _{DS} = 25V, V _{GS} = 0V f = 1.0MHz		685		pF
Output Capacitance	C _{OSS}			85		pF
Reverse Transfer Capacitance	C _{RSS}			50		pF
Gate resistance	R _g	V _{GS} = 0V, V _{DS} = 0V, f = 1.0MHz		2		ohm
SWITCHING CHARACTERISTICS^c						
Turn-On Delay Time	t _{D(ON)}	V _{DD} = 30V I _D = 4.5 A V _{GS} = 10V R _{GEN} = 6 ohm		11		ns
Rise Time	t _r			12		ns
Turn-Off Delay Time	t _{D(OFF)}			38		ns
Fall Time	t _f			8		ns
Total Gate Charge	Q _g	V _{DS} = 48V, I _D = 4.5A, V _{GS} = 10V		12.7		nC
		V _{DS} = 48V, I _D = 4.5A, V _{GS} = 4.5V		6.9		nC
Gate-Source Charge	Q _{gs}	V _{DS} = 48V, I _D = 4.5 A		1.8		nC
Gate-Drain Charge	Q _{gd}	V _{GS} = 10V		3.6		nC

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ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ ^c	Max	Unit
DRAIN-SOURCE DIODE CHARACTERISTICS^b						
Diode Forward Voltage	V_{SD}	$V_{GS} = 0V, I_s = 1.7A$		0.8	1.2	V

Notes

- a. Surface Mounted on FR4 Board, $t \leq 10\text{sec}$.
- b. Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$.
- c. Guaranteed by design, not subject to production testing.

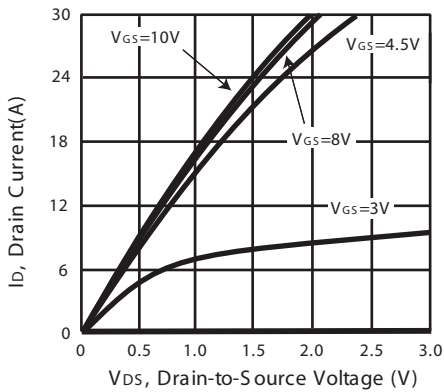


Figure 1. Output Characteristics

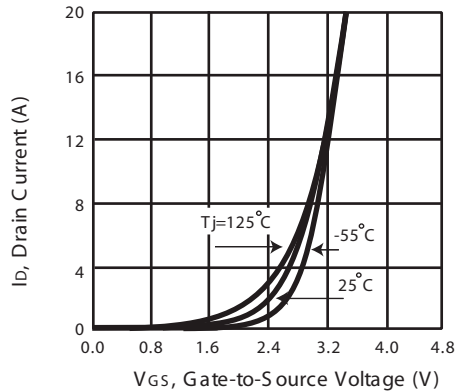


Figure 2. Transfer Characteristics

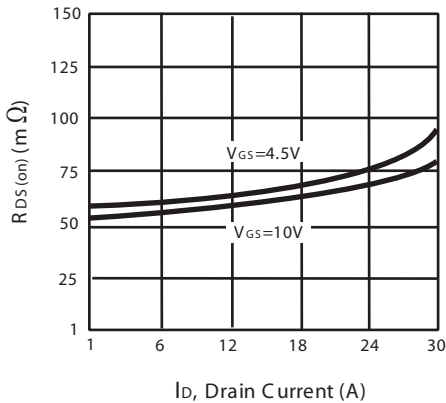


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

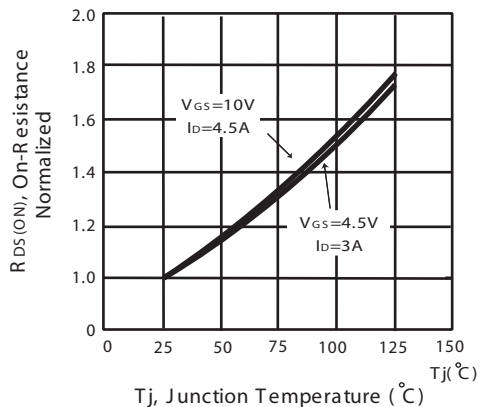


Figure 4. On-Resistance Variation with Drain Current and Temperature

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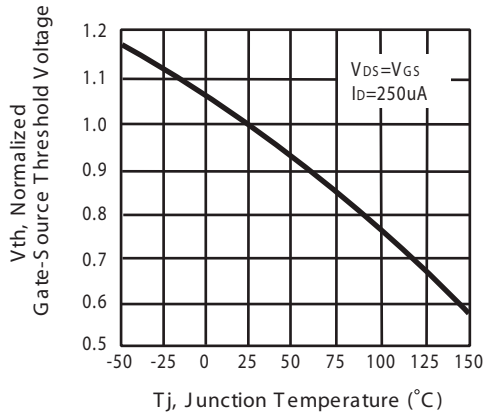


Figure 5. Gate Threshold Variation with Temperature

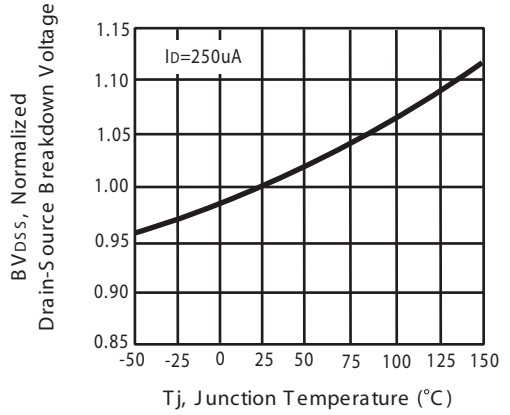


Figure 6. Breakdown Voltage Variation with Temperature

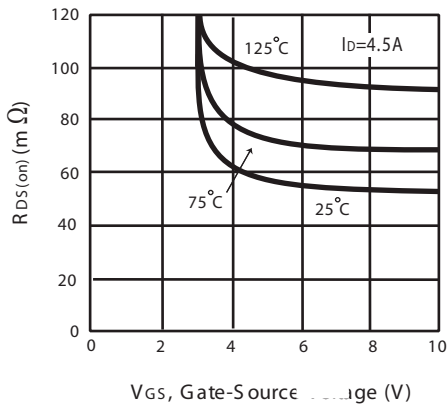


Figure 7. On-Resistance vs. Gate-Source Voltage

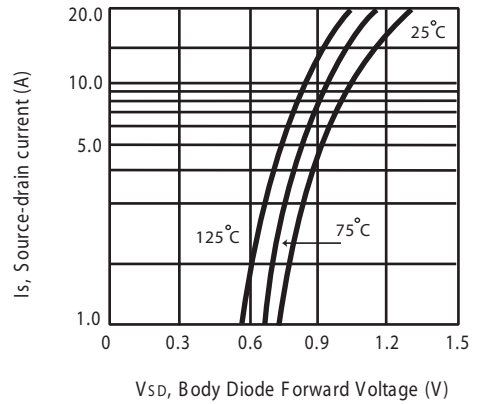


Figure 8. Body Diode Forward Voltage Variation with Source Current

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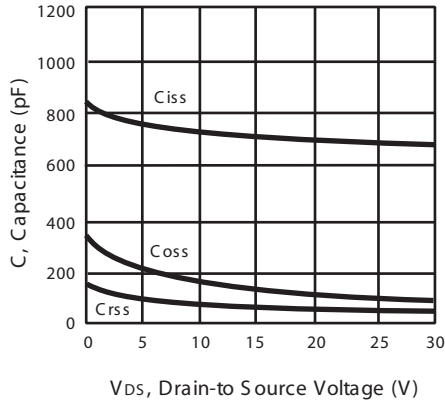


Figure 9. Capacitance

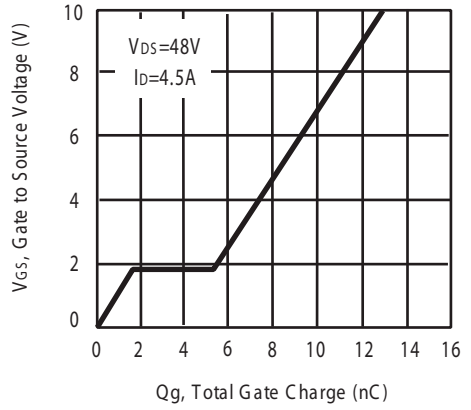


Figure 10. Gate Charge

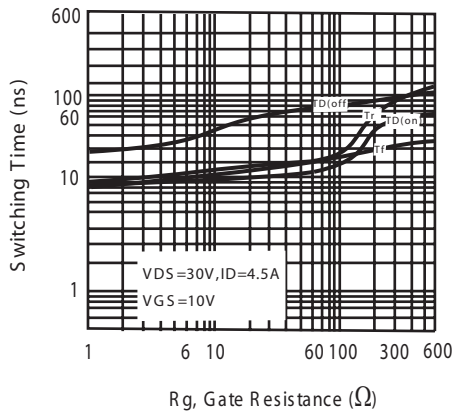


Figure 11. switching characteristics

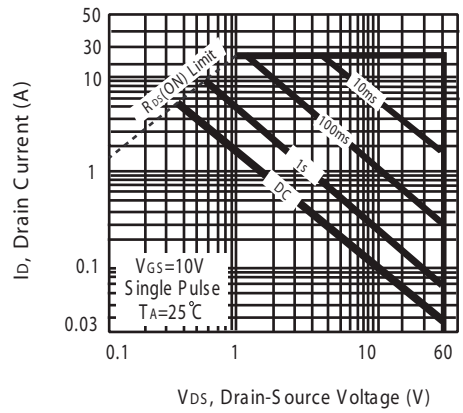
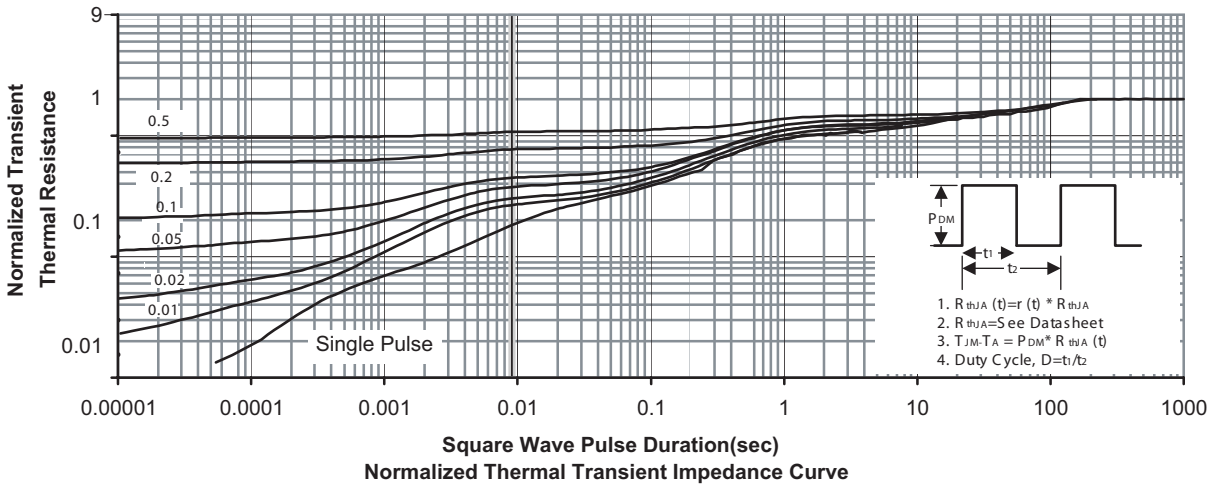


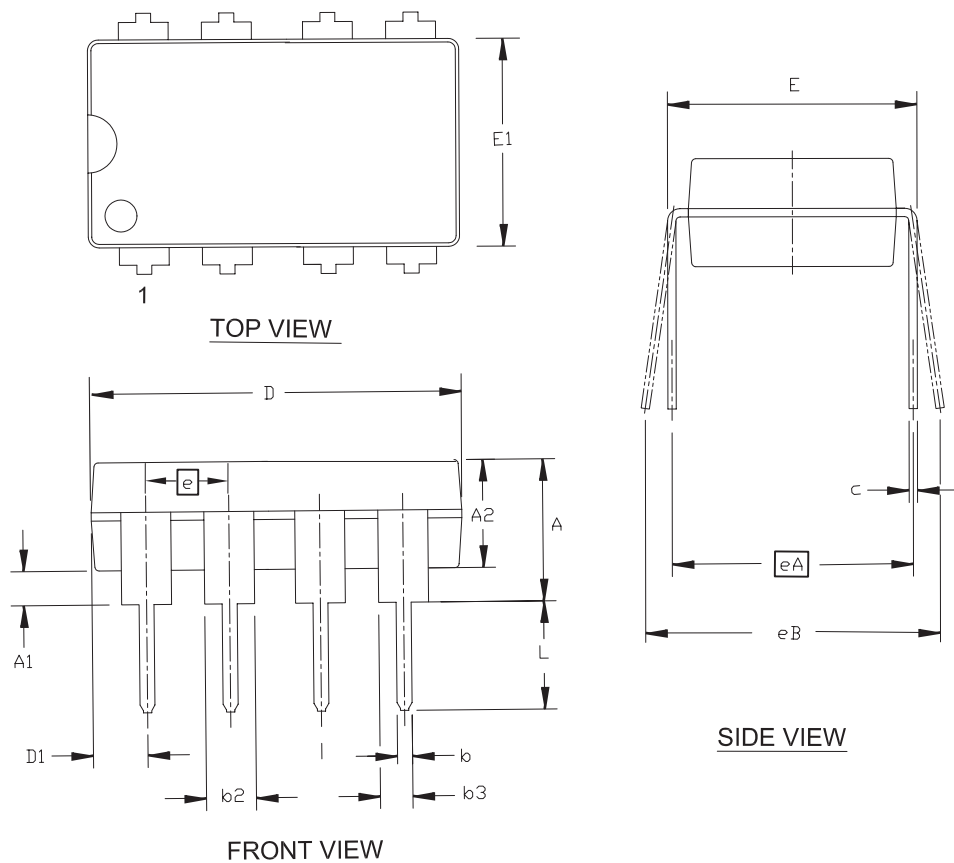
Figure 12. Maximum Safe Operating Area



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PACKAGE OUTLINE DIMENSIONS

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SYMBOL	INCHES			MILLIMETERS		
	MIN	NOM	MAX	MIN	NOM	MAX
A	.145	.172	.200	3.68	4.37	5.08
A1	.020	-	-	0.51	-	-
A2	.125	.130	.135	3.18	3.30	3.43
b	.015	.018	.021	0.38	0.46	0.53
c	.009	.012	.014	0.23	0.30	0.36
b2	.045	.060	.070	1.14	1.52	1.78
b3	.030	.039	.045	0.76	0.99	1.14
L	.125	.132	.140	3.18	3.35	3.56
e	.090	.100	.110	2.29	2.54	2.79
D	.373	.386	.400	9.47	9.80	10.16
D1	.030	.045	.060	0.76	1.14	1.52
E	.300	.310	.320	7.62	7.87	8.13
E1	.245	.250	.255	6.22	6.35	6.48
eA	.280	-	-	7.11	-	-
eB	.310	.325	.365	7.87	8.26	9.27