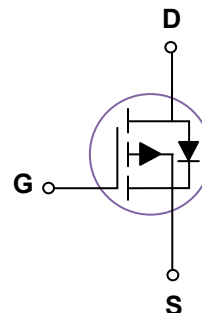
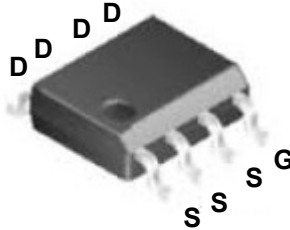


General Description

These P-Channel enhancement mode power field effect transistors are using trench DMOS technology. This advanced technology has been especially tailored to minimize on-state resistance, provide superior switching performance, and withstand high energy pulse in the avalanche and commutation mode. These devices are well suited for high efficiency fast switching applications.

Features

V_{DS}	-30V
I_D (at $V_{GS}=-20V$)	-12A
$R_{DS(ON)}$ (at $V_{GS}=-10V$)	9.8m Ω (Typ)
$R_{DS(ON)}$ (at $V_{GS}=-4.5V$)	13.5m Ω (Typ)

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Absolute Maximum Ratings $T_A=25^{\circ}C$ unless otherwise noted

Parameter	Symbol	Maximum	Units	
Drain-Source Voltage	V_{DS}	-30	V	
Gate-Source Voltage	V_{GS}	± 20	V	
Drain Current-Continuous	TC=25 $^{\circ}C$	I_D	-12	A
	TC=100 $^{\circ}C$	I_D	-7.6	A
Drain Current – Pulsed	I_{DM}	-48	A	
Maximum Power Dissipation	P_D	2.5	W	
Junction and Storage Temperature Range	T_J, T_{STG}	-55 To 150	$^{\circ}C$	

Thermal Characteristics

Parameter	Symbol	Typ	Max	Unit
Thermal Resistance junction-case	$R_{\theta Jc}$		25	$^{\circ}C/W$
Thermal Resistance junction-to-Ambient	$R_{\theta JA}$		60	$^{\circ}C/W$

Electrical Characteristics (T_J=25°C unless otherwise noted)

Symbol	Parameter	Condition	Min	Typ	Max	Unit
STATIC PARAMETERS						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =-250μA	-30			V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-30V, V _{GS} =0V			1	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±20V, V _{DS} =0V			±100	nA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =-250μA	-1.0	-1.5	-2.5	V
R _{DS(ON)}	Drain-Source On-State Resistance	V _{GS} =-10V, I _D =-10A		9.8	12	mΩ
		V _{GS} =-4.5V, I _D =-5A		13.5	18	mΩ
DYNAMIC PARAMETERS						
C _{ISS}	Input Capacitance	V _{DS} =-15V, V _{GS} =0V, F=1.0MHz		2150		pF
C _{OSS}	Output Capacitance			308		pF
C _{RSS}	Reverse Transfer Capacitance			240		pF
SWITCHING PARAMETERS						
t _{d(on)}	Turn-on Delay Time	V _{DS} =-15V, I _D =-1A, V _{GS} =-10V, R _G =6Ω		8		nS
t _r	Turn-on Rise Time			19		nS
t _{d(off)}	Turn-Off Delay Time			75		nS
t _f	Turn-Off Fall Time			46		nS
Q _g	Total Gate Charge	V _{DS} =-15V, I _D =-10A, V _{GS} =-10V		40		nC
Q _{gs}	Gate-Source Charge			8.4		nC
Q _{gd}	Gate-Drain Charge			8.5		nC
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _{SD} =-1A		0.72	1.4	V

Note:

1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%.
3. Essentially independent of operating temperature.

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

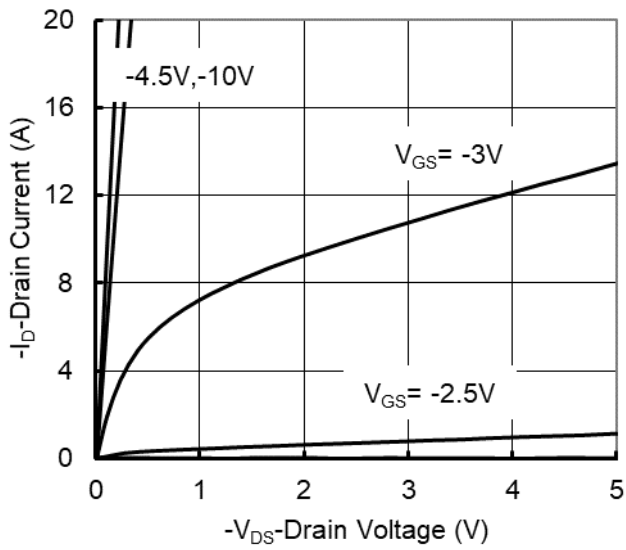


Figure 1. Output Characteristics

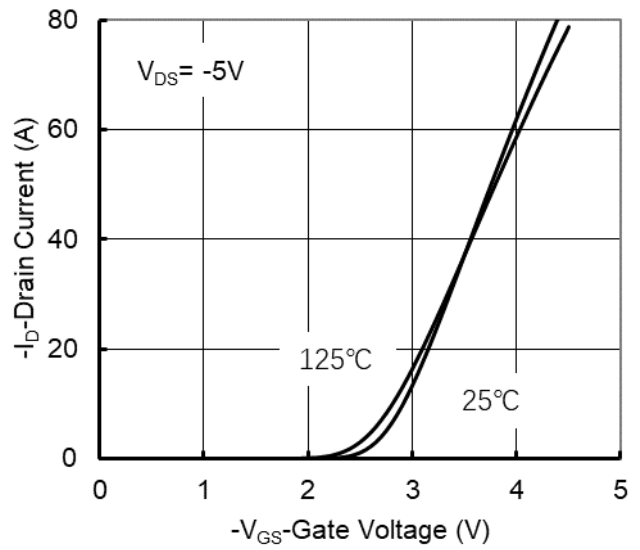


Figure 2. Transfer Characteristics

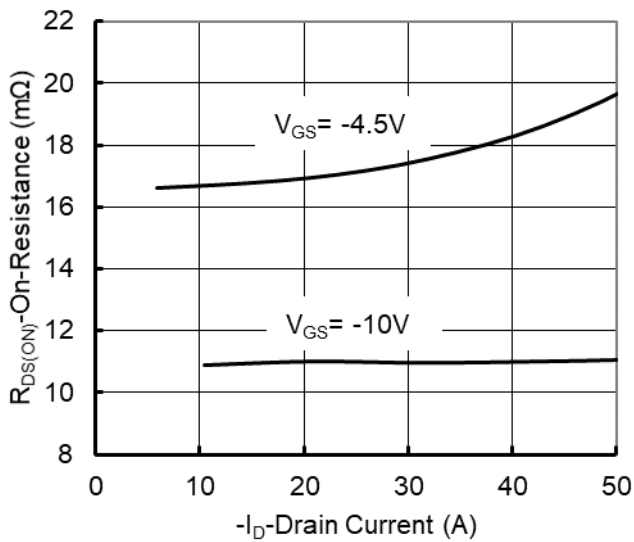


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

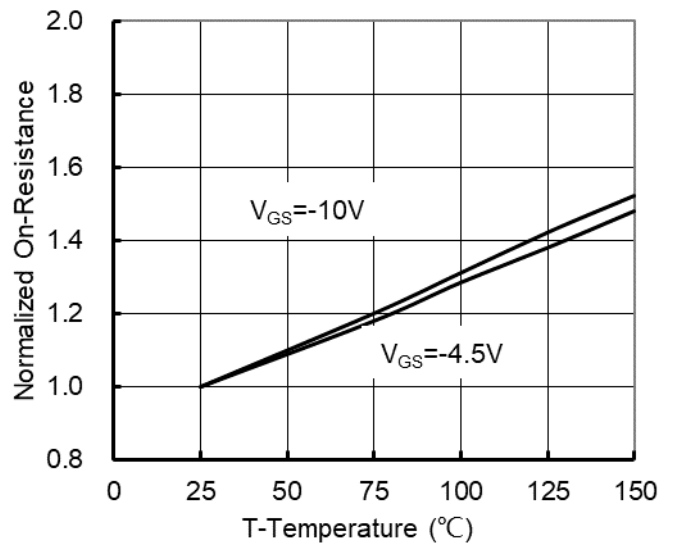


Figure 4. On-Resistance vs. Junction Temperature

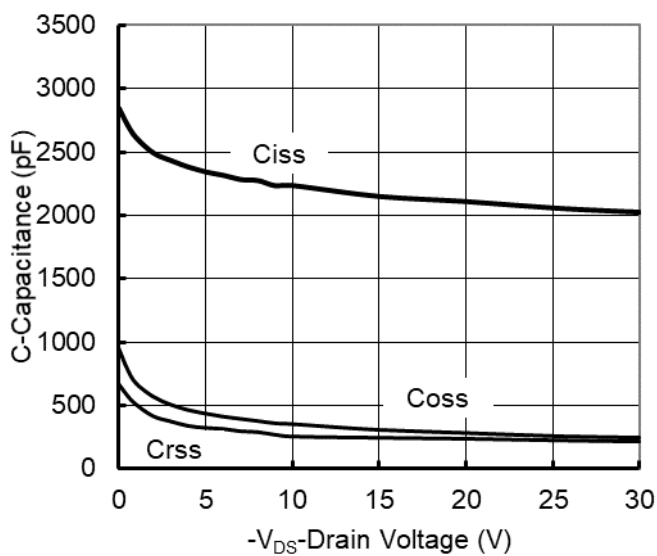


Figure 5. Capacitance Characteristics

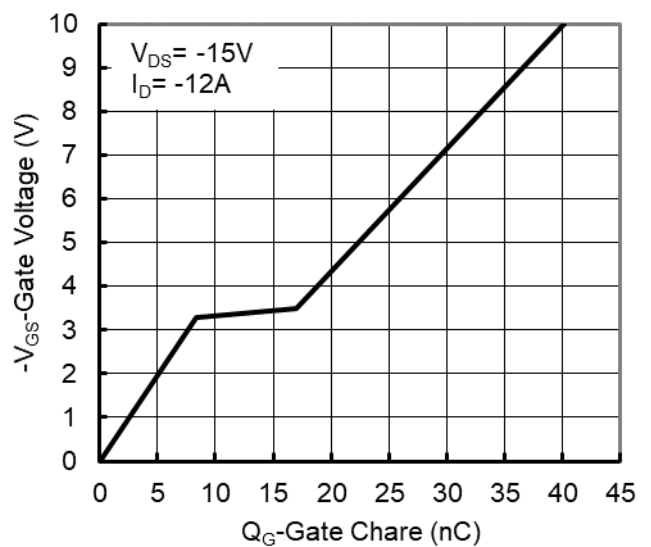


Figure 6. Gate Charge

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

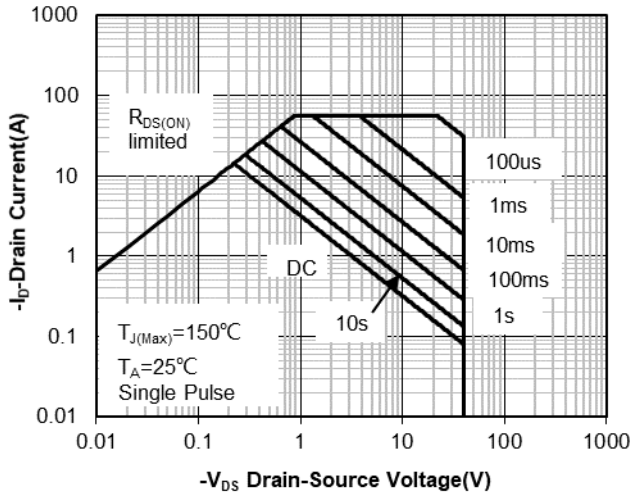


Figure 7. Safe Operation Area

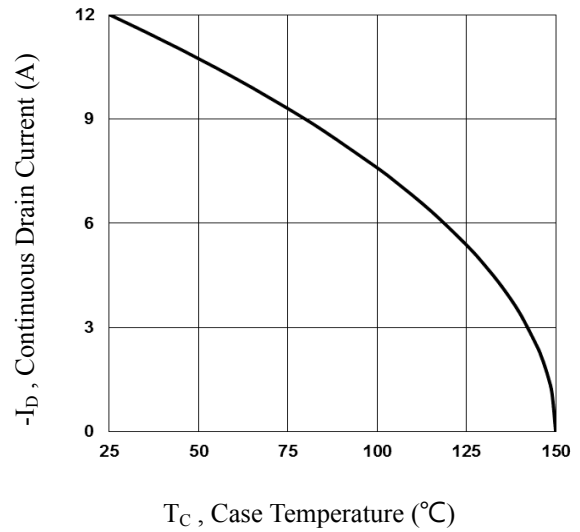


Figure 8. Maximum Continuous Drain Current vs Ambient Temperature

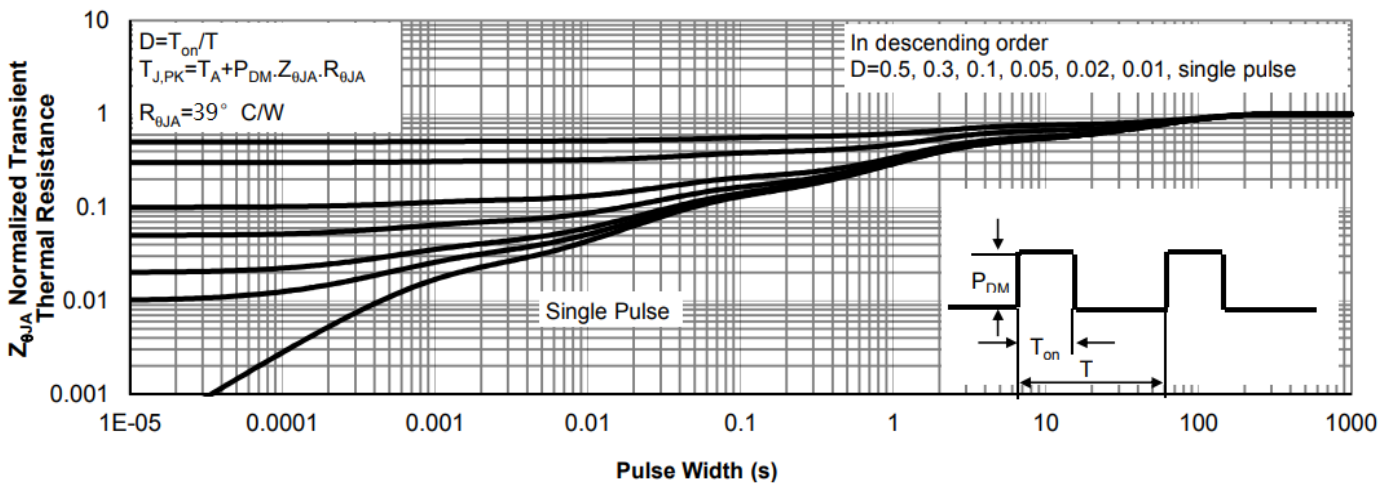
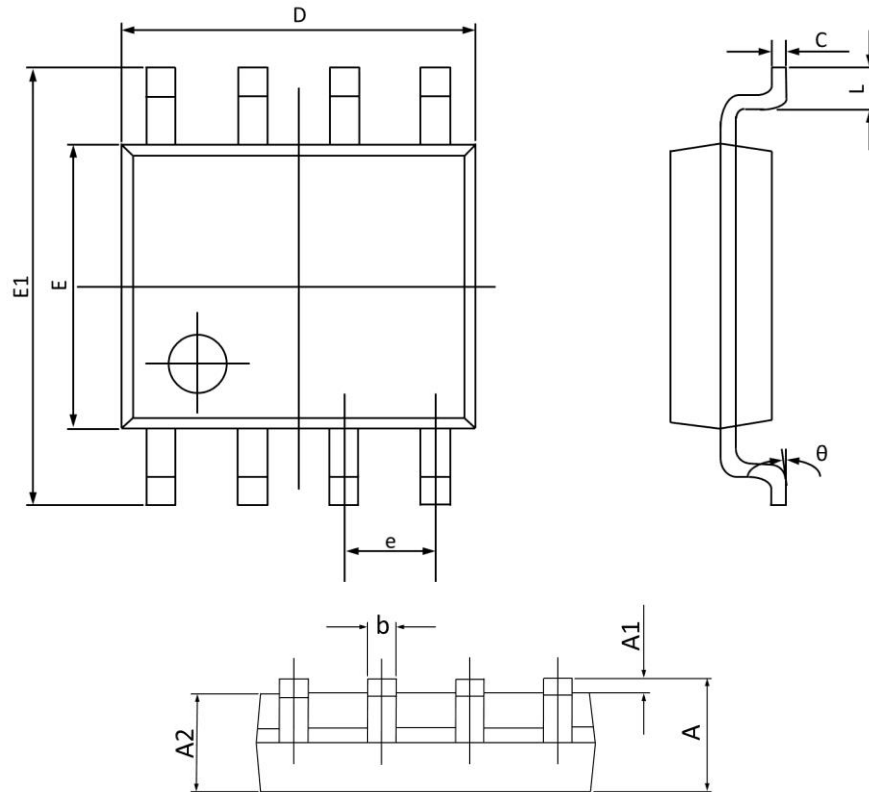


Figure 9. Normalized Maximum Transient Thermal Impedance

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Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MAX	MIN	MAX	MIN
A	1.750	1.350	0.069	0.053
A1	0.250	0.100	0.010	0.004
A2	1.500	1.300	0.059	0.051
b	0.490	0.350	0.019	0.014
C	0.260	0.190	0.010	0.007
D	5.100	4.700	0.201	0.185
E	4.100	3.700	0.161	0.146
E1	6.200	5.800	0.244	0.228
e	1.27BSC		0.05BSC	
L	0.900	0.400	0.035	0.016
θ	8°	0°	8°	0°