

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
-30V	26mΩ@-10V	-8A
	43mΩ@-4.5V	

Feature

- Low gate charge and Excellent $R_{DS(on)}$
- Advanced Trench Technology

Application

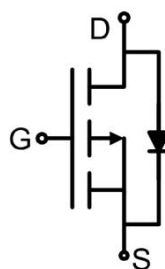
- Load Switch
- PWM Application
- Power Management

Package



SOP-8

Circuit diagram



Marking



Absolute maximum ratings ($T_J=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ($T_A=25^{\circ}\text{C}$)	I_D	-8	A
Continuous Drain Current ($T_A=100^{\circ}\text{C}$)	$I_{D(100^{\circ}\text{C})}$	-4.8	A
Pulsed Drain Current ¹⁾	I_{DM}	-32	A
Single Pulse Avalanche Energy ²⁾	E_{AS}	20	mJ
Power Dissipation ($T_A=25^{\circ}\text{C}$)	P_D	2.55	W
Thermal Resistance Junction to Ambient ³⁾	$R_{\theta JA}$	49	$^{\circ}\text{C}/\text{W}$
Operating Junction Temperature	T_J	$-55 \sim +150$	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	$-55 \sim +150$	$^{\circ}\text{C}$

Electrical characteristics ($T_J=25^{\circ}\text{C}$, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =-250μA	-30			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =-30V, V _{GS} =0V			-1	μA
Gate-body leakage current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-1	-1.6	-2.2	V
Drain-source on-resistance ⁴⁾	R _{DS(on)}	V _{GS} =-10V, I _D =-5A		20	26	mΩ
		V _{GS} =-4.5V, I _D =-3A		33	43	
Dynamic characteristics ⁵⁾						
Input Capacitance	C _{iss}	V _{DS} =-15V, V _{GS} =0V, f =1MHz		670		pF
Output Capacitance	C _{oss}			116		
Reverse Transfer Capacitance	C _{rss}			95		
Total Gate Charge	Q _g	V _{DS} =-15V, V _{GS} =-10V I _D =-8A		51		nC
Gate-Source Charge	Q _{gs}			9.8		
Gate-Drain Charge	Q _{gd}			8.2		
Turn-on delay time	t _{d(on)}	V _{DS} =-15V, V _{GS} =-10V I _D =-1A, R _G =6Ω		13		nS
Turn-on rise time	t _r			15		
Turn-off delay time	t _{d(off)}			198		
Turn-off fall time	t _f			98		
Source-Drain Diode characteristics						
Diode Forward Current	I _S				-8	A
Diode Forward voltage	V _{SD}	V _{GS} =0V, I _S =-5A			-1.2	V
Reverse Recovery Time	T _{rr}	I _F =-2A, di/dt =-100A/μs		37		nS
Reverse Recovery Charge	Q _{rr}			36		nC

Notes:

- 1) Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.
- 2) The E_{AS} Test condition is $V_{DD}=-15\text{V}, V_{GS}=-10\text{V}, L=0.5\text{mH}, R_G=25\Omega, I_{AS}=-9\text{A}, T_J=25^{\circ}\text{C}$.
- 3) $R_{\theta JA}$ is measured with the device mounted on a 1inch² pad of 2oz copper FR4 PCB.
- 4) Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 0.5\%$.
- 5) Guaranteed by design, not subject to production testing.

Typical Characteristics

Figure 1: Output Characteristics

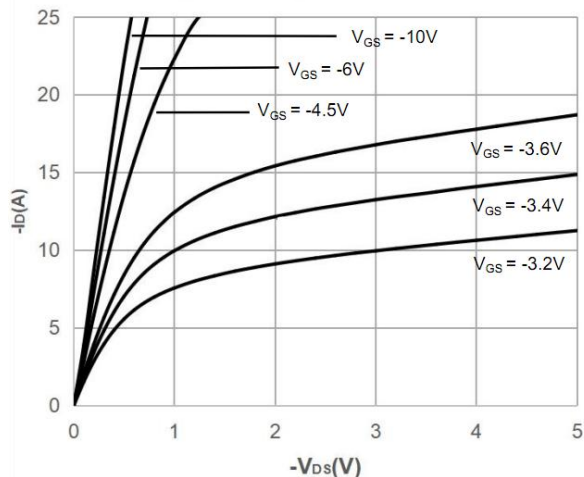


Figure 2: Typical Transfer Characteristics

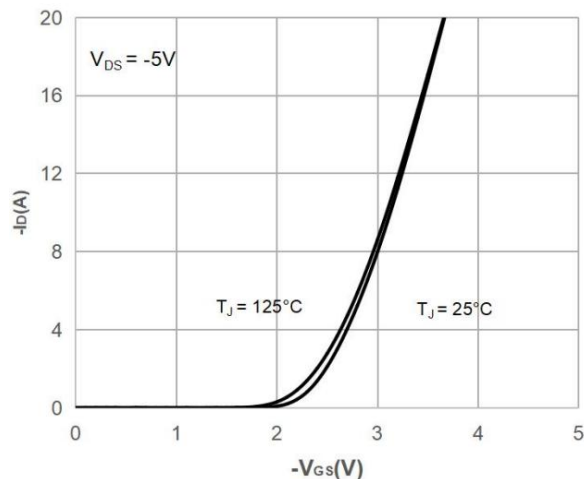


Figure 3: On-resistance vs. Drain Current

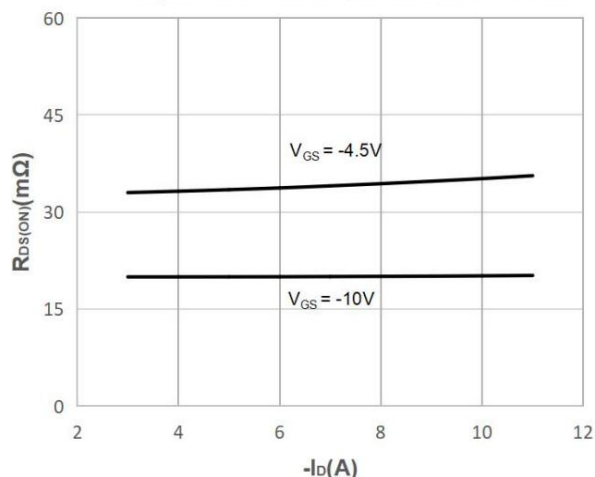


Figure 4: Body Diode Characteristics

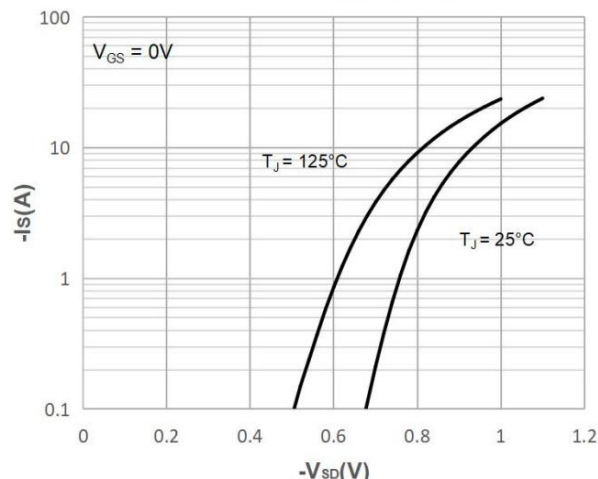


Figure 5: Gate Charge Characteristics

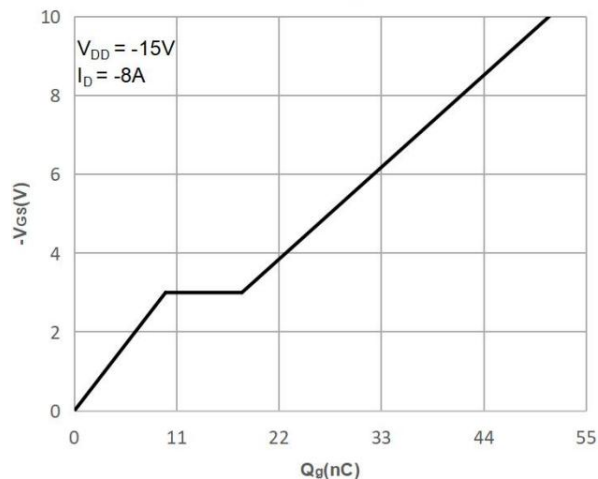
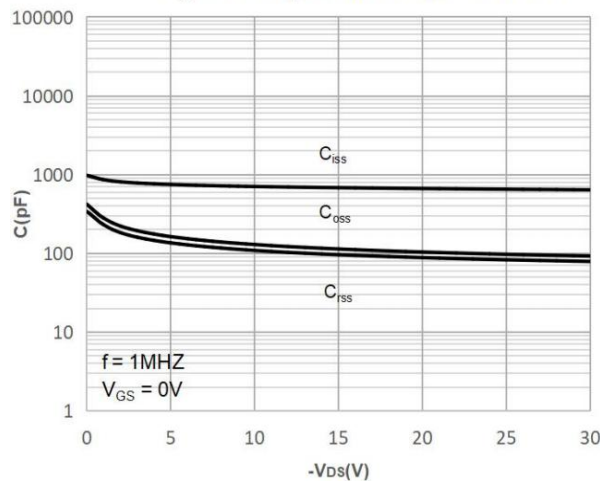


Figure 6: Capacitance Characteristics



Typical Characteristics

Figure 7: Normalized Breakdown voltage vs. Junction Temperature

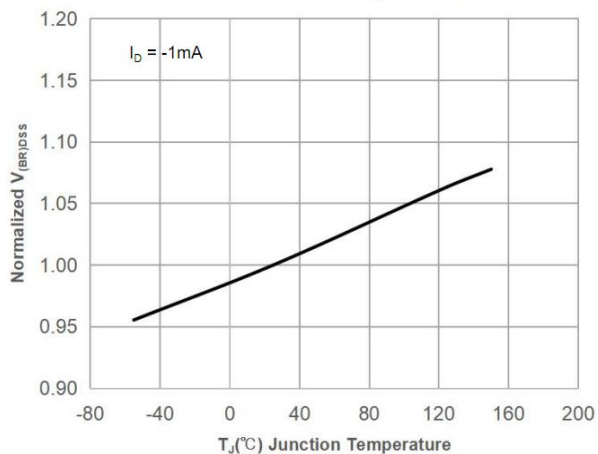


Figure 8: Normalized on Resistance vs. Junction Temperature

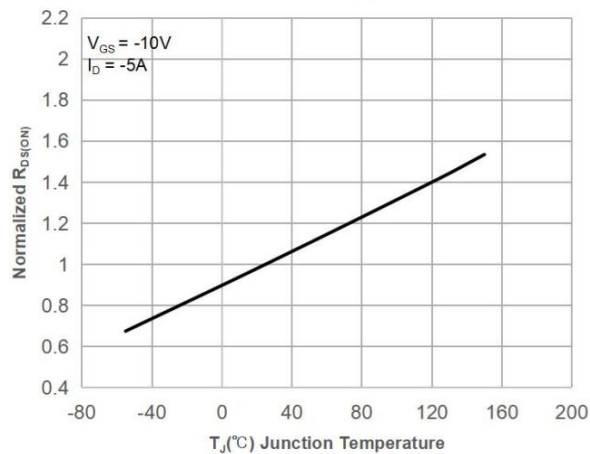


Figure 9: Maximum Safe Operating Area

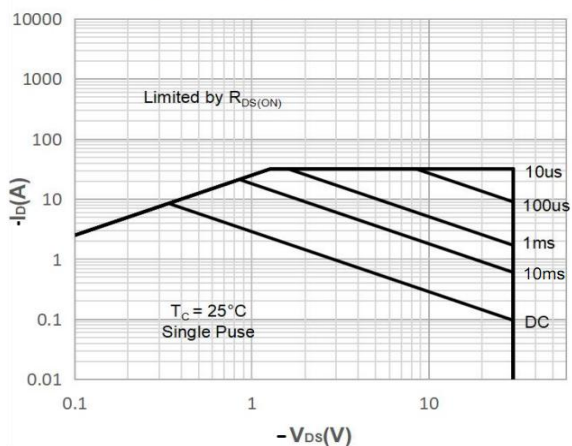


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

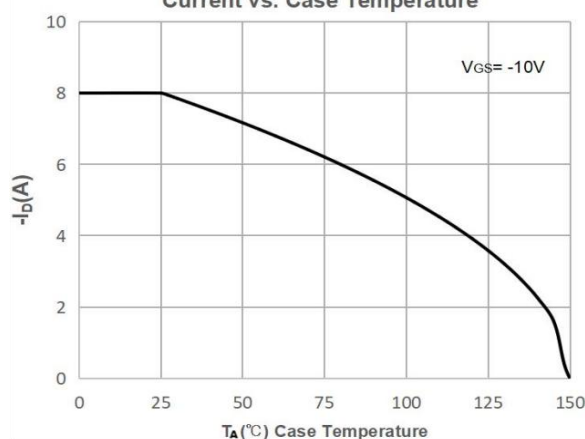


Figure 11: Normalized Maximum Transient Thermal Impedance

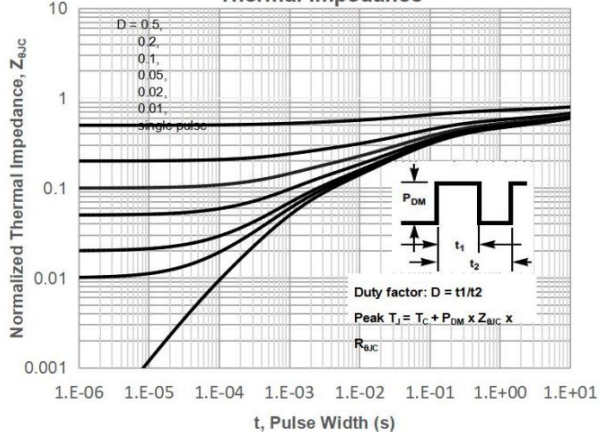
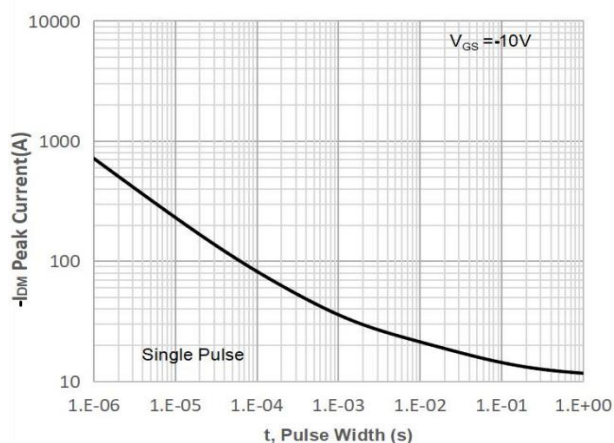
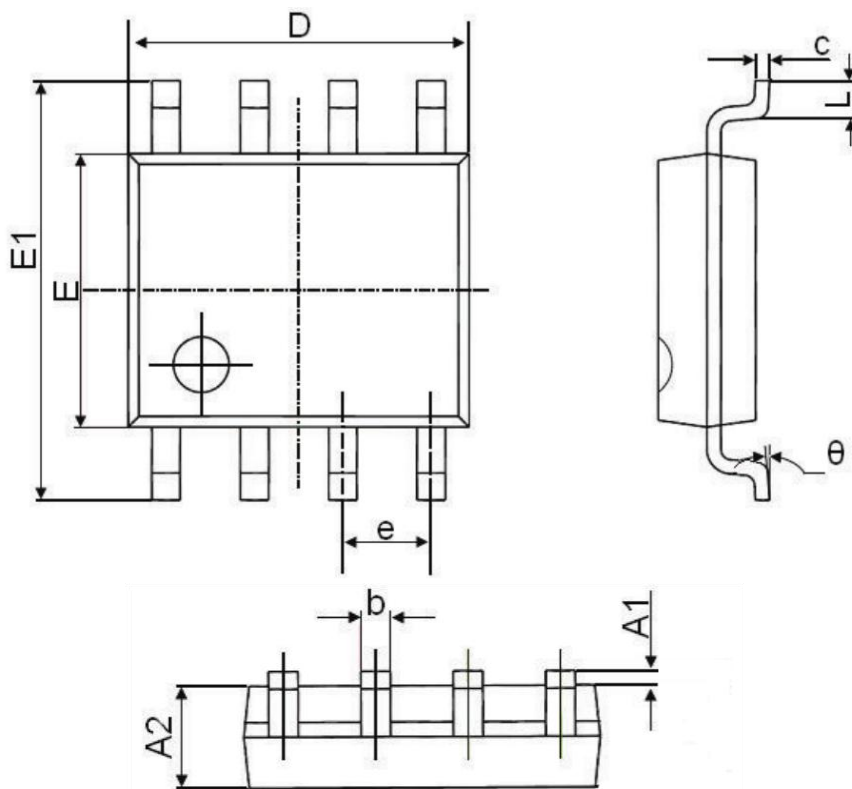


Figure 12: Peak Current Capacity



SOP-8 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A1	0.030	0.150	0.001	0.006
A2	1.425	1.475	0.056	0.058
b	0.300	0.500	0.012	0.020
c	0.150	0.250	0.006	0.010
D	4.800	5.200	0.189	0.205
E	3.800	4.200	0.150	0.165
E1	5.800	6.200	0.228	0.244
e	1.270 BSC.		0.050 BSC.	
L	0.400	0.800	0.016	0.031
θ	0°	8°	0°	8°