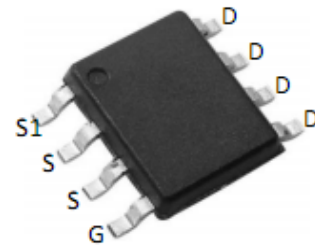


N-Channel 20-V(D-S)MOSFET

Description:

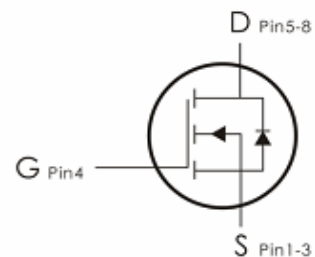
This N-Channel MOSFET uses advanced trench technology and design to provide excellent $R_{DS(ON)}$ with low gate charge.

It can be used in a wide variety of applications.



Features:

- 1) $V_{DS}=20V, I_D=12A, R_{DS(ON)} < 10m\Omega @ V_{GS}=4.5V$
- 2) Low gate charge.
- 3) Green device available.
- 4) Advanced high cell density trench technology for ultra low $R_{DS(ON)}$.
- 5) Excellent package for good heat dissipation.



Absolute Maximum Ratings: ($T_s=25^\circ C$ unless otherwise noted)

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	20	V
V_{GS}	Gate-Source Voltage	± 12	V
I_D	Continuous Drain Current - $T_C=25^\circ C$	12	A
	Continuous Drain Current - $T_C=100^\circ C$	7.5	
I_{DM}	Drain Current-Pulsed ¹	35	A
P_D	Power Dissipation	1.25	W
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +150	$^\circ C$

Thermal Characteristics:

Symbol	Parameter	Max	Units
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	100	$^\circ C/W$

Electrical Characteristics: ($T_C=25^\circ\text{C}$ unless otherwise noted)

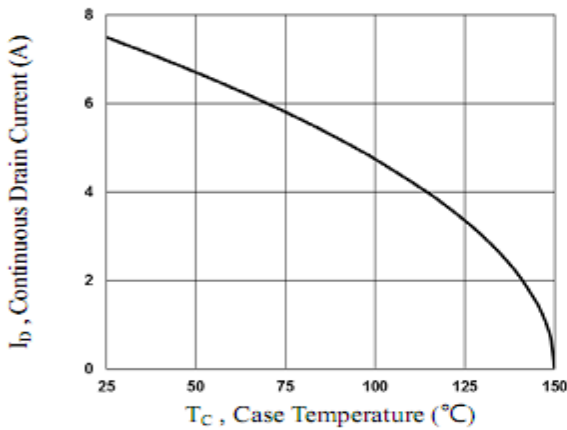
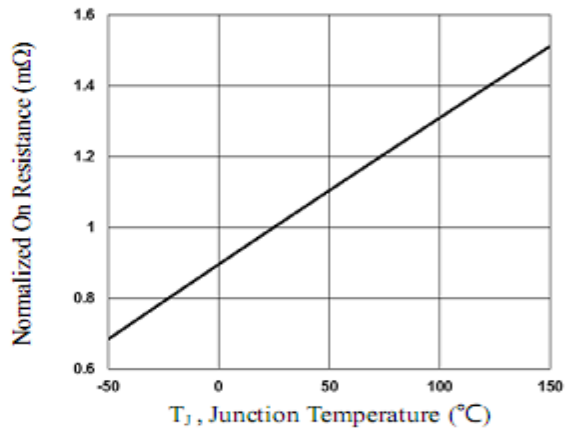
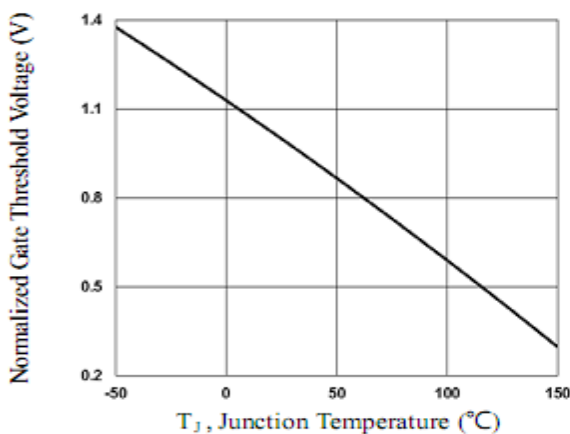
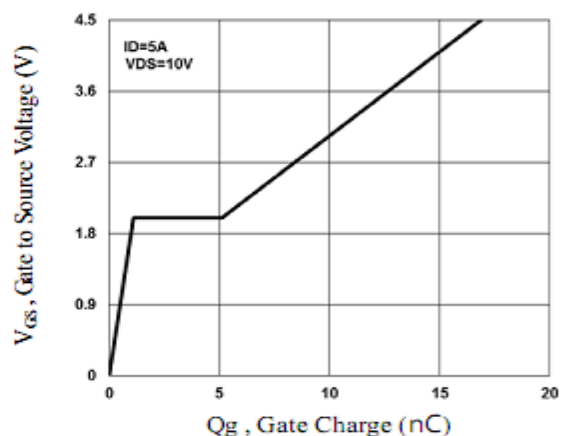
Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\ \mu\text{A}$	20	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{GS}=0V, V_{DS}=20V, T_J=25^\circ\text{C}$	---	---	1	μA
		$V_{GS}=0V, V_{DS}=16V, T_J=125^\circ\text{C}$	---	---	10	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 12V, V_{DS}=0A$	---	---	± 10	μA
On Characteristics						
$V_{GS(th)}$	GATE-Source Threshold Voltage	$V_{GS}=V_{DS}, I_D=250\ \mu\text{A}$	0.3	0.6	1	V
$R_{DS(on)}$	Drain-Source On Resistance	$V_{GS}=4.5V, I_D=5A$	---	8.5	10	m Ω
		$V_{GS}=2.5V, I_D=3A$	---	14	18	
G_{FS}	Forward Transconductance	$V_{DS}=10V, I_D=5A$	---	11	---	S
Dynamic Characteristics						
C_{iss}	Input Capacitance	$V_{DS}=10V, V_{GS}=0V, f=1\text{MHz}$	---	1000	1450	pF
C_{oss}	Output Capacitance		---	158	230	
C_{rss}	Reverse Transfer Capacitance		---	105	155	
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time ^{2,3}	$V_{DD}=10V, I_D=1A$ $R_G=25\ \Omega, V_{GS}=4.5V,$	---	6.8	13	ns
t_r	Rise Time ^{2,3}		---	20	38	ns
$t_{d(off)}$	Turn-Off Delay Time ^{2,3}		---	41.8	79	ns
t_f	Fall Time ^{2,3}		---	13.2	25	ns
Q_g	Total Gate Charge ^{2,3}	$V_{GS}=4.5V, V_{DS}=10V,$ $I_D=5A$	---	16.9	26	nC
Q_{gs}	Gate-Source Charge ^{2,3}		---	1.1	3	nC
Q_{gd}	Gate-Drain "Miller" Charge ^{2,3}		---	4	7	nC
Drain-Source Diode Characteristics						

V_{SD}	Source-Drain Diode Forward Voltage	$V_{GS}=0V, I_S=1A, T_J=25^\circ C$	---	---	1	V
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	7.5	A
I_{SM}	Pulsed Source Current		---	---	30	A

Notes:

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

Typical Characteristics: ($T_C=25^\circ C$ unless otherwise noted)


Fig.1 Continuous Drain Current vs. T_C

Fig.2 Normalized R_{DSON} vs. T_J

Fig.3 Normalized V_{th} vs. T_J

Fig.4 Gate Charge Waveform

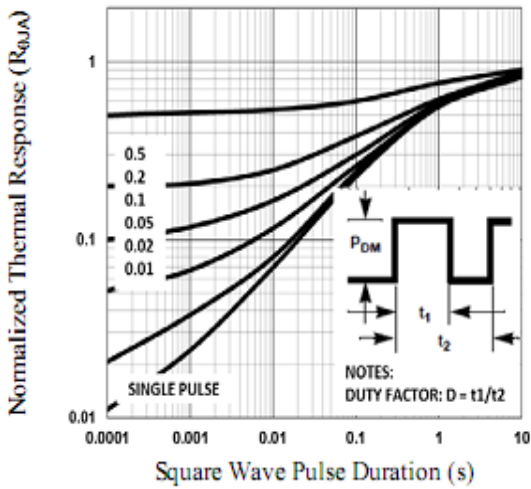


Fig.5 Normalized Transient Impedance

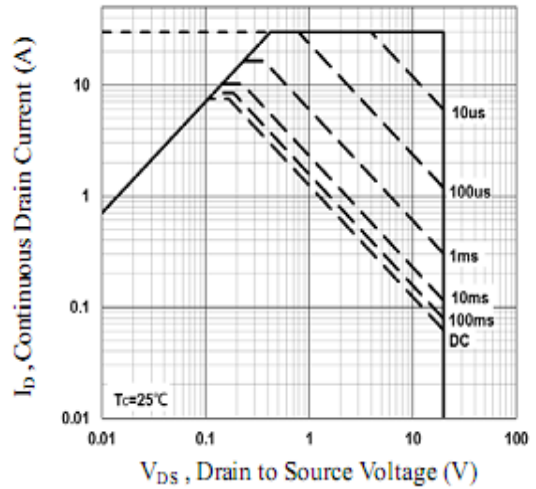


Fig.6 Maximum Safe Operation Area

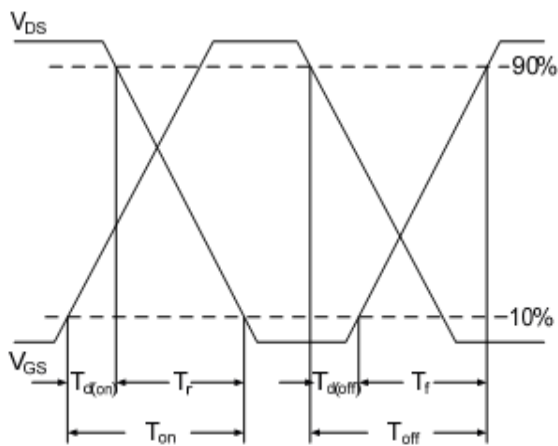


Fig.7 Switching Time Waveform

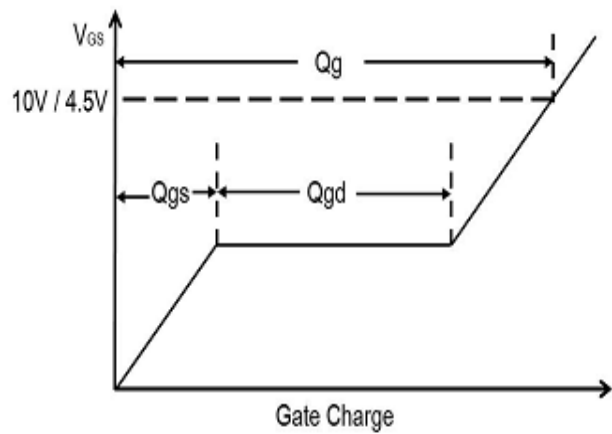
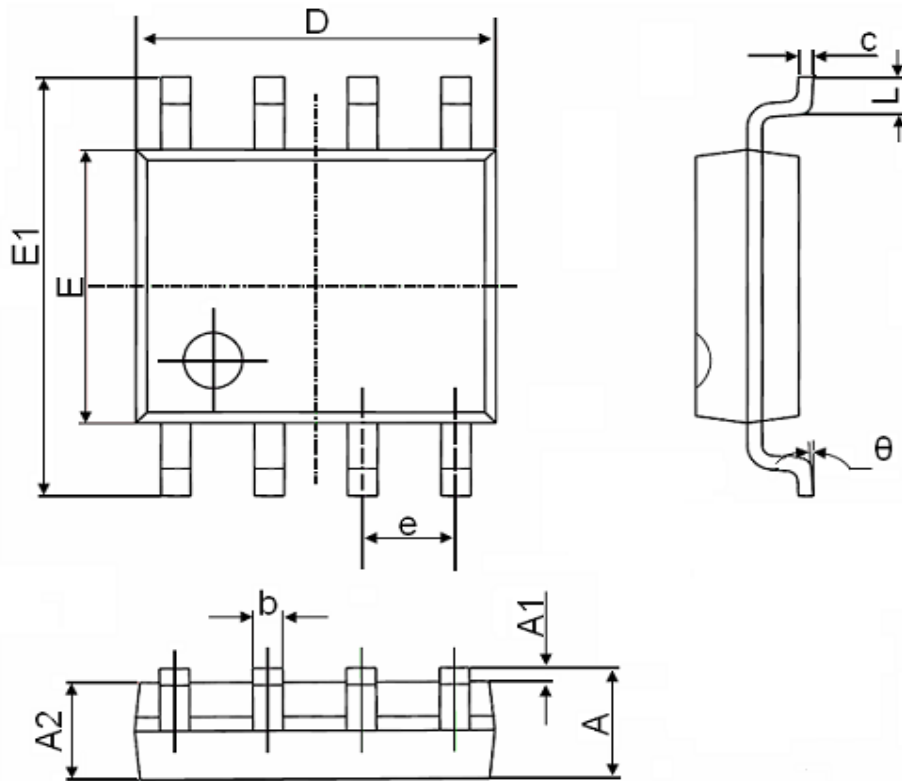


Fig.8 Gate Charge Waveform

SOP-8 Package Information


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.006	0.010
D	4.700	5.100	0.185	0.200
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270(BSC)		0.050(BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [MOSFET](#) category:

Click to view products by [SLKORMICRO](#) manufacturer:

Other Similar products are found below :

[IRFD120](#) [JANTX2N5237](#) [2SK2267\(Q\)](#) [BUK455-60A/B](#) [TK100A10N1,S4X\(S](#) [MIC4420CM-TR](#) [VN1206L](#) [NDP4060](#) [SI4482DY](#)
[IRS2092STRPBF-EL](#) [IPS70R2K0CEAKMA1](#) [SQM120N06-3M5L-GE3](#) [TK31J60W5,S1VQ\(O](#) [TK31J60W,S1VQ\(O](#) [TK16J60W,S1VQ\(O](#)
[2SK2614\(TE16L1,Q\)](#) [DMN1017UCP3-7](#) [EFC2J004NUZTDG](#) [P85W28HP2F-7071](#) [NTE2384](#) [DMC2700UDMQ-7](#) [DMN2080UCB4-7](#)
[DMN61D9UWQ-13](#) [US6M2GTR](#) [DMN31D5UDJ-7](#) [DMP22D4UFO-7B](#) [IPS60R3K4CEAKMA1](#) [DMN1006UCA6-7](#) [DMN16M9UCA6-7](#)
[STF5N65M6](#) [IRF40H233XTMA1](#) [STU5N65M6](#) [DMN6022SSD-13](#) [DMN13M9UCA6-7](#) [DMTH10H4M6SPS-13](#) [IPS60R360PFD7SAKMA1](#)
[DMN2990UFB-7B](#) [SSM3K35CT,L3F](#) [IPLK60R1K0PFD7ATMA1](#) [2N7002W-G](#) [MCAC30N06Y-TP](#) [IPWS65R035CFD7AXKSA1](#)
[MCQ7328-TP](#) [SSM3J143TU,LXHF](#) [PJMF280N65E1_T0_00201](#) [PJMF380N65E1_T0_00201](#) [PJMF280N60E1_T0_00201](#)
[PJMF600N65E1_T0_00201](#) [PJMF900N65E1_T0_00201](#) [PJMF900N60E1_T0_00201](#)