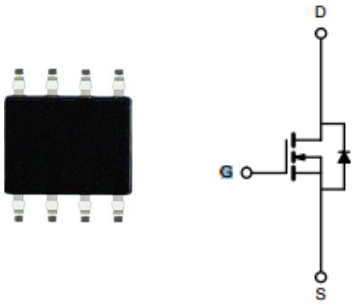
Description

This N-channel MOSFET s use advanced trench technology and design to provide excellent RDS(on) with low gate charge. It can be used in a wide variety of applications.

Features

BVDSS	RDSON	ID
30V	5.5MΩ	18A

1) Low gate charge.
2) Green device available.
3) Advanced high cell denity trench technology for ultra RDS(ON)
4) Excellent package for good heat dissipation.



SOP-8

Absolute Maximum Ratings Tc=25℃,unless otherwise noted

Symbol	Parameter	Ratings	Units
VDS	Drain-Source Voltage	30	V
VGS	Gate-Source Voltage	±20	V
ID	Continuous Drain Current-1	18	A
	Continuous Drain Current-T=100℃	14	
	Pulsed Drain Current2	140	
EAS	Single Pulse Avalanche Energy3	88	mJ
PD	Power Dissipation4	3.1	W
TJ, TSTG	Operating and Storage Junction Temperature Range	-55 to 150	℃

Thermal Characteristics

Symbol	Parameter	Ratings	Units
$R_{\theta JC}$	Thermal Resistance ,Junction to Case1	40	℃/W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient1	24	

Package Marking and Ordering Information

Part NO.	Marking	Package
KSMN4498	KSMN4498	SOP-8

Electrical Characteristics T_C=25℃ unless otherwise noted

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV_{DSS}	Drain-Sourtce Breakdown Voltage	V_{DS}=0V,I_D=250μA	30	36.5	—	v
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=0V, V_{DS}=32V	—	—	1	μA
I_{GSS}	Gate-Source Leakage Current	V_{DS}=±20V, V_{DS}=0A	—	—	100	nA
On Characteristics						
$V_{GS(th)}$	GATE-Source Threshold Voltage	V_{DS}=VDS, I_D=250μA	1.3	1.8	2.5	V
$R_{DS(ON)}$	Drain-Source On Resistance[2]	V_{DS}=10V,I_D=6A	—	4.6	5.5	MΩ
		V_{DS}=2.5V,I_D=5A	—	6.6	8	
G_{FS}	Forward Transconductance	V_{DS}=5V,I_D=12A	—	53	—	S
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=15V,V_{GS}=0V, f=1MHz	—	1910	2300	pF
C_{oss}	Output Capacitance		—	316	—	
C_{rss}	Reverse Transfer Capacitance		—	227	—	
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time	V_{DS}=20V, V_{GS}=10V,R_{GEN}=3.3Ω	—	8.1	—	ns
t_r	Rise Time		—	8.6	—	ns
$t_{d(off)}$	Turn-Off Delay Time		—	29	—	ns
t_f	Fall Time		—	8	—	ns
Q_g	Total Gate Charge	V_{GS}=4.5V, V_{DS}=20V, I_D=6A	—	37	44.5	nC
Q_{gs}	Gate-SourceCharge		—	18	—	nC
Q_{gd}	Gate-Drain “Miller” Charge		—	4.8	—	nC
Drain-Source Diode Characteristics						
V_{SD}	Source-Drain Diode ForwardVoltage[2]	V_{GS}=0V,I_S =1A	—	0.7	1	V
t_{rr}	Reverse Recovery Time	I_F=7A,di/dt=100A/S	—	14	17	ns
Q_{rr}	Reverse Recovery Charge		—	40	—	nC

Notes:

1. The data tested by surface mounted on a 1 inch² FR-4 board 2OZ copper.
2. The data tested by pulse width≤300us,duty cycle≤2%
3. The EAS data shows Max.rating.The test condition is V_{DD}=25v,V_{GS}=10V,L=0.1mH,i_{AS}=17.8A
4. The power dissipation is limited by 150℃ junction temperature.

Typical Characteristics T_J=25℃ unless otherwise noted

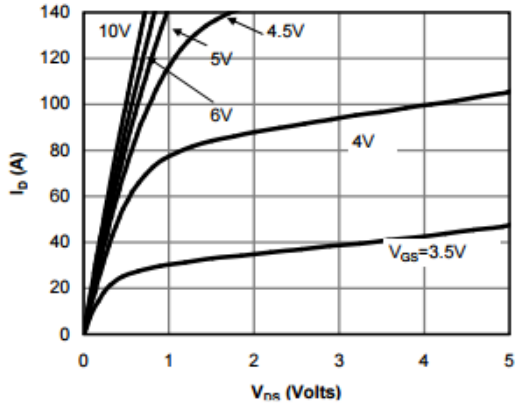


Figure 1. On-Region Characteristics

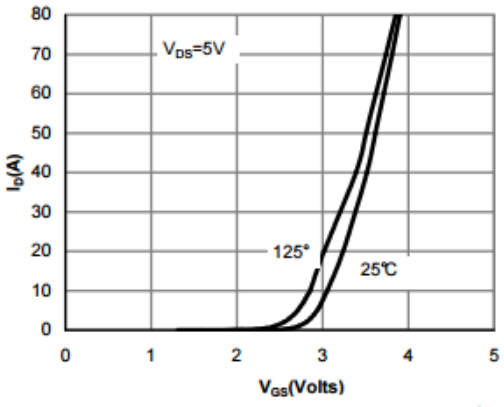


Figure 2. Transfer Characteristics

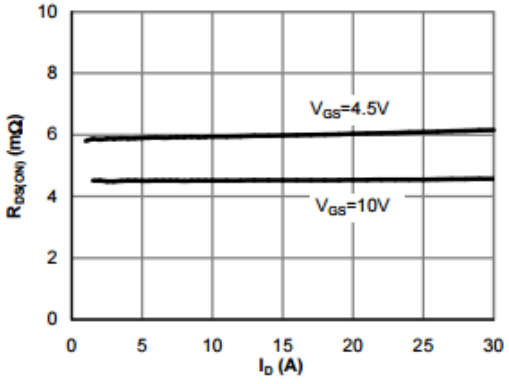


Figure 3. On-Resistance Variation vs. Drain Current and Gate Voltage

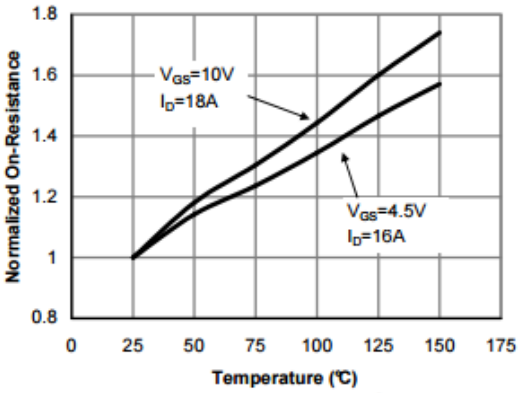


Figure 4: On-Resistance vs. Junction Temperature

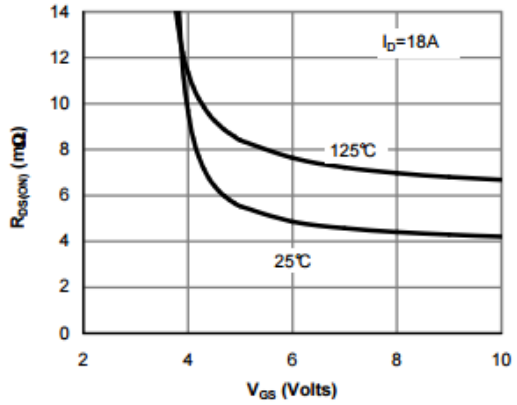


Figure 5: On-Resistance vs. Gate-Source Voltage

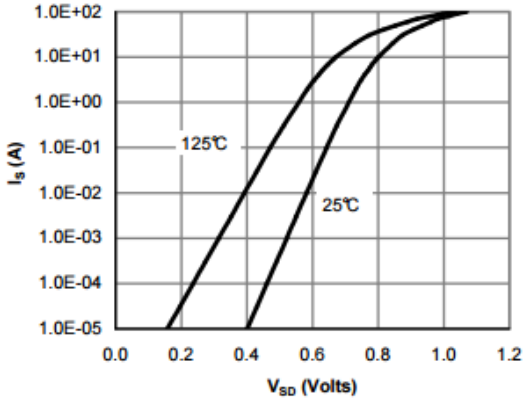


Figure 6: Body-Diode Characteristics

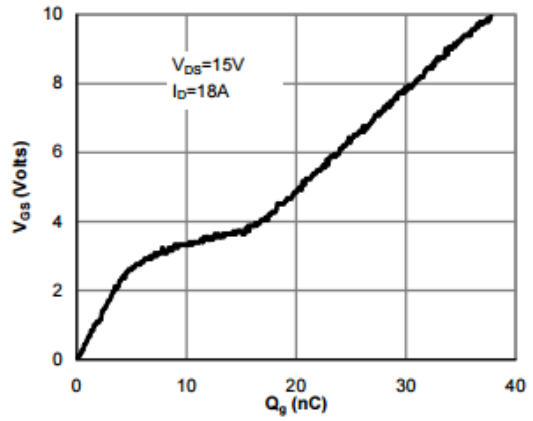


Figure 7: Gate-Charge Characteristics

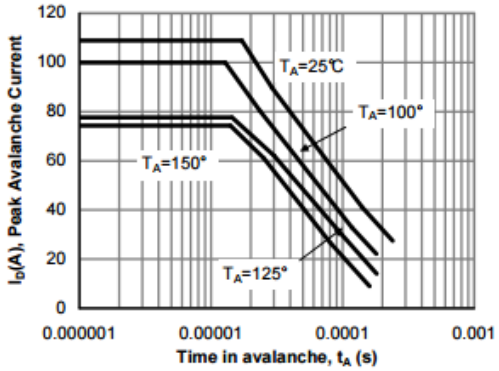


Figure 8.Maximum Safe Operating Area

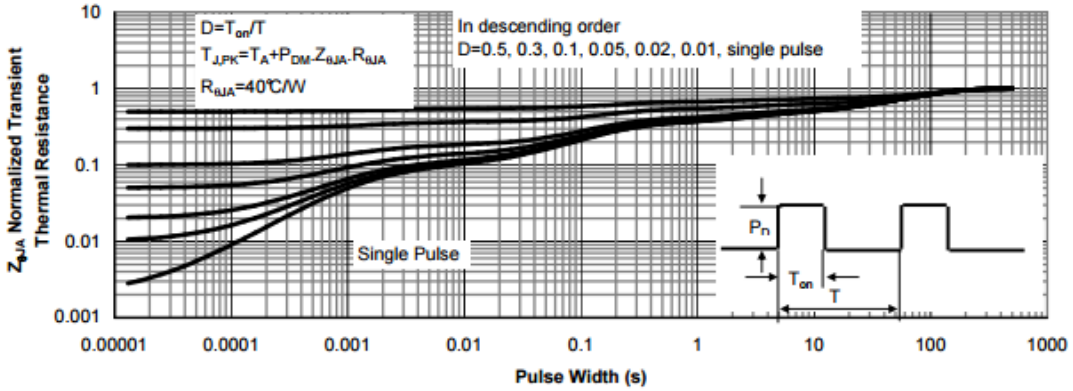


Figure 9: Normalized Maximum Transient Thermal Impedance