

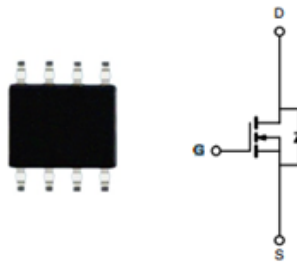
Description

This N-channel MOSFETS 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	RDS(on)	ID
30V	22mΩ	7.9A

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



Sop-8

Absolute Maximum Ratings $T_c=25^{\circ}\text{C}$, unless otherwise noted

Symbol	Parameter	Ratings	Units
VDS	Drain-Source Voltage	30	V
VGS	Gate-Source Voltage	±20	V
ID	Continuous Drain Current-1	7.9	A
	Continuous Drain Current- $T=100^{\circ}\text{C}$	40	
	Pulsed Drain Current ²	—	
EAS	Single Pulse Avalanche Energy ³	—	mJ
PD	Power Dissipation ⁴	2.5	W
TJ, TSTG	Operating and Storage Junction Temperature Range	-55 to +175	$^{\circ}\text{C}$

Thermal Characteristics

Symbol	Parameter	Ratings	Units
$R_{\theta JC}$	Thermal Resistance, Junction to Case ¹	50	$^{\circ}\text{C}/\text{W}$
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient ¹	25	

Package Marking and Ordering Information

Part NO.	Marking	Package
KSMN4488	KSMN4488	SOT-223

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

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV _{DSS}	Drain-Sourctce Breakdown Voltage	V _{DS} =0V, I _D =250μA	30	—	—	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} =V _{DS} , I _D =250μA	1	1.8	3	V
R _{DS(ON)}	Drain-Source On Resistance ²	V _{DS} =10V, I _D =6A	—	15	22	MΩ
		V _{DS} =2.5V, I _D =5A	—	21	30	
G _{FS}	Forward Transconductance	V _{DS} =5V, I _D =12A	—	20	—	S
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =15V, V _{GS} =0V, f=1MHz	—	927	—	pF
C _{oss}	Output Capacitance		—	241	—	
C _{rss}	Reverse Transfer Capacitance		—	97	—	
Switching Characteristics						
t _{d(on)}	Turn-On Delay Time	V _{DS} =20V, V _{GS} =10V, R _{GEN} =3.3Ω	—	7.4	15	ns
t _r	Rise Time		—	7.5	15	ns
t _{d(off)}	Turn-Off Delay Time	V _{GS} =4.5V, V _{DS} =20V, I _D =6A	—	25	40	ns
t _f	Fall Time		—	5	10	ns
Q _g	Total Gate Charge	V _{GS} =4.5V, V _{DS} =20V, I _D =6A	—	9.5	13	nC
Q _{gs}	Gate-SourceCharge		—	3.3	—	nC
Q _{gd}	Gate-Drain “Miller” Charge		—	3.1	—	nC
Drain-Source Diode Characteristics						
V _{SD}	Source-Drain Diode ForwardVoltage ²	V _{GS} =0V, I _s =1A	—	0.7	1.2	V
t _{rr}	Reverse Recovery Time	I _f =7A, di/dt=100A/μS	—	22	—	ns
Q _{rr}	Reverse Recovery Charge		—	20	—	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 $\leq 300\mu s$, duty cycle $\leq 2\%$
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 $^{\circ}C$ junction temperature.

Typical Characteristics $T_J=25^{\circ}C$ unless otherwise noted

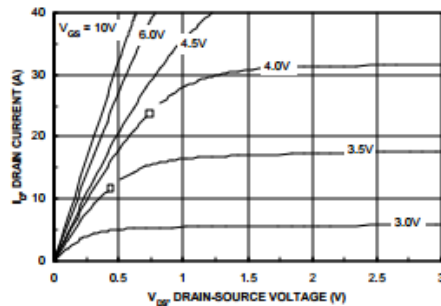


Figure 1. On-Region Characteristics.

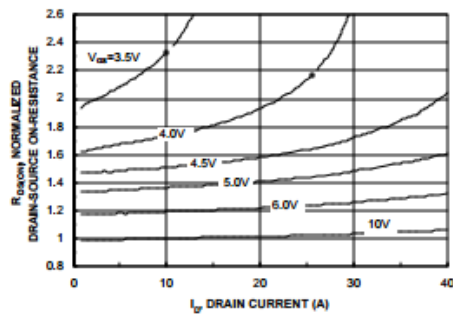


Figure 2. On-Resistance Variation with Drain Current and Gate Voltage.

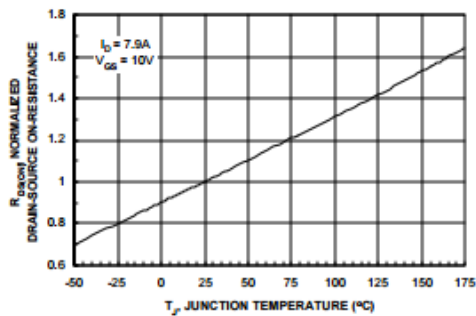


Figure 3. On-Resistance Variation with Temperature.

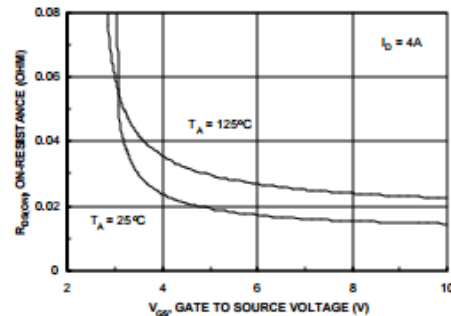


Figure 4. On-Resistance Variation with Gate-to-Source Voltage.

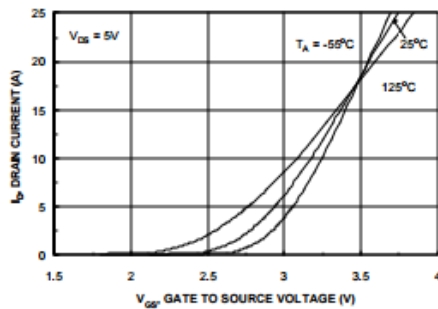


Figure 5. Transfer Characteristics.

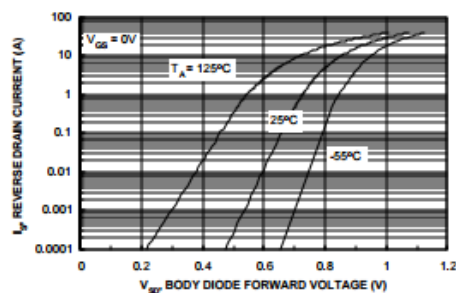
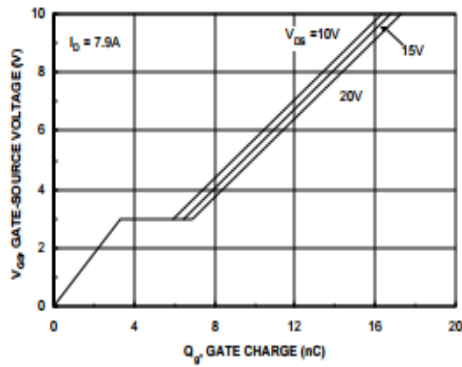
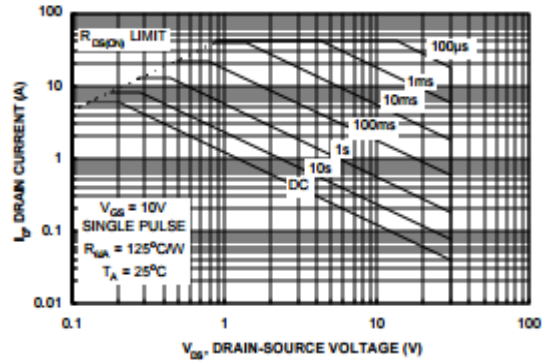
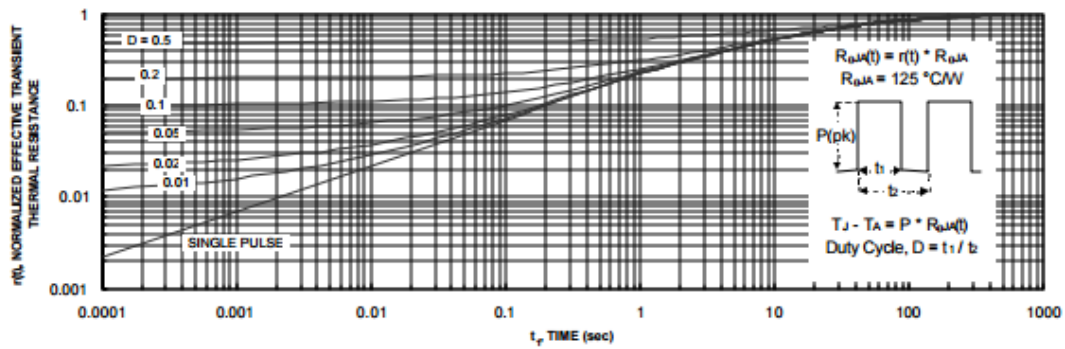


Figure 6. Body Diode Forward Voltage Variation with Source Current and Temperature.


Figure 7. Gate Charge Characteristics.

Figure 8. Maximum Safe Operating Area.

Figure 9. Transient Thermal Response Curve