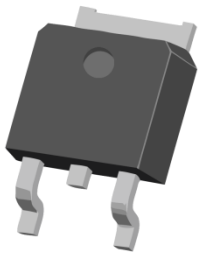
Description

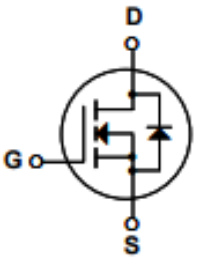
This N-channel MOSFETS use advanced trench technology and design to provide excellent RDS(on) with low gate charge. It can be used in a wide variety of applications.

Features

BVDSS	RDSON	ID
40V	2.4Ω	180A

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.





TO-252

Absolute Maximum Ratings Tc=25℃,unless otherwise noted

Symbol	Parameter	Ratings	Units
VDS	Drain-Source Voltage	40	V
VGS	Gate-Source Voltage	±20	V
ID	Continuous Drain Current-1	180	A
	Continuous Drain Current-T=100℃	125	
	Pulsed Drain Current2	90	
EAS	Single Pulse Avalanche Energy3	160	mJ
PD	Power Dissipation4	140	W
TJ, TSTG	Operating and Storage Junction Temperature Range	-55 to +175	℃

Thermal Characteristics

Symbol	Parameter	Ratings	Units
RθJC	Thermal Resistance ,Junction to Case1	1.05	℃/W
RθJA	Thermal Resistance, Junction to Ambient1	50	

Package Marking and Ordering Information

Part NO.	Marking	Package
KSMD7440	KSMD7440	TO-252

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	40	—	—	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	2.2	3.0	3.9	V
$R_{DS(ON)}$	Drain-Source On Resistance[2]	V_{DS}=10V,I_D=6A	—	—	2.4	Ω
		V_{DS}=2.5V,I_D=5A	—	—	—	---
G_{FS}	Forward Transconductance	V_{DS}=5V,I_D=12A	280	—	—	S
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=15V,V_{GS}=0V, f=1MHz	—	4610	—	pF
C_{oss}	Output Capacitance		—	690	—	
C_{rss}	Reverse Transfer Capacitance		—	460	—	
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time	V_{DS}=20V, V_{GS}=10V,R_{GEN}=3.3Ω	—	11	—	ns
t_r	Rise Time		—	39	—	ns
$t_{d(off)}$	Turn-Off Delay Time		—	51	—	ns
t_f	Fall Time		—	34	—	ns
Q_g	Total Gate Charge	V_{GS}=4.5V, V_{DS}=20V, I_D=6A	—	89	134	nC
Q_{gs}	Gate-SourceCharge		—	26	—	nC
Q_{gd}	Gate-Drain “Miller” Charge		—	63	—	nC
Drain-Source Diode Characteristics						
V_{SD}	Source-Drain Diode ForwardVoltage[2]	V_{GS}=0V,I_S =1A	—	0.9	1.3	V
t_{rr}	Reverse Recovery Time	I_F=7A,di/dt=100A/μS	—	34	—	ns
Q_{rr}	Reverse Recovery Charge		—	33	—	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

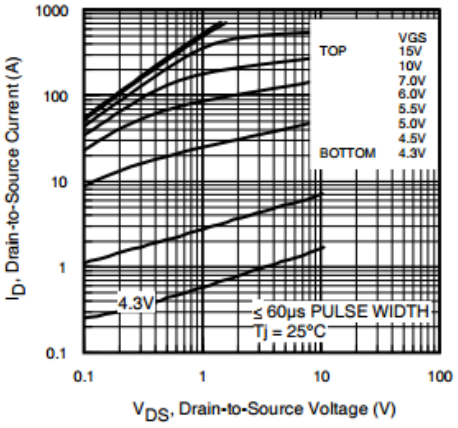


Fig 1. Typical Output Characteristics

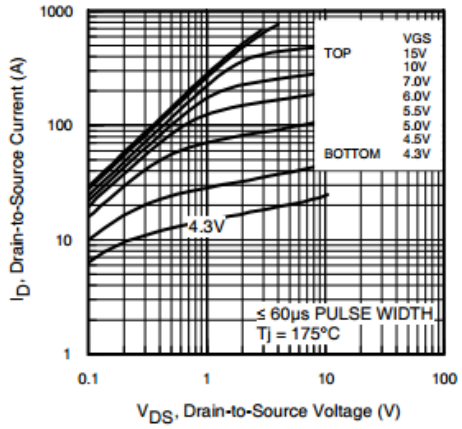


Fig 2. Typical Output Characteristics

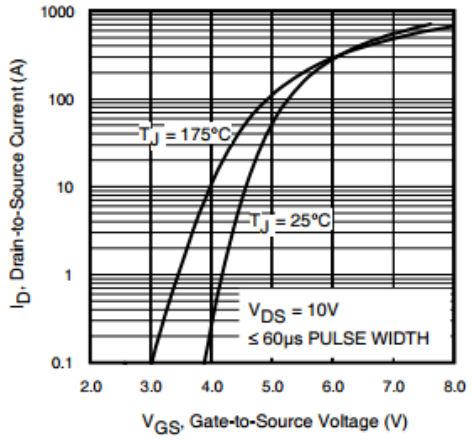


Fig 3. Typical Transfer Characteristics

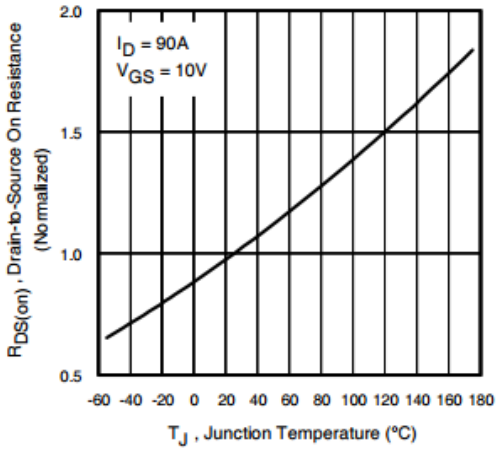


Fig 4. Normalized On-Resistance Vs. Temperature

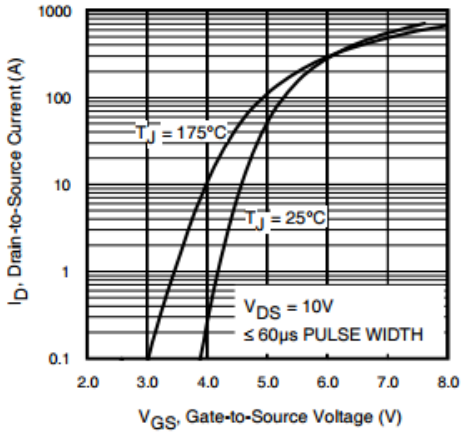


Fig 5. Typical Capacitance vs. Drain-to-Source Voltage

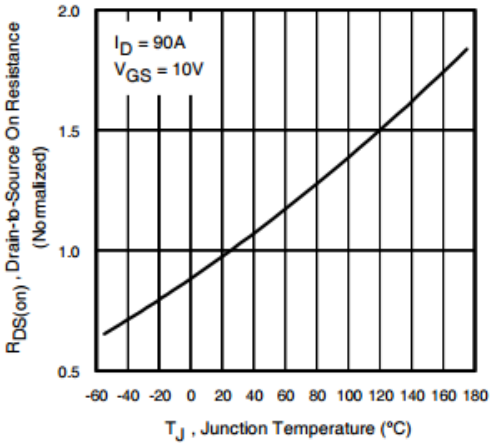


Fig 6. Typical Gate Charge vs. Drain-to-Source Voltage

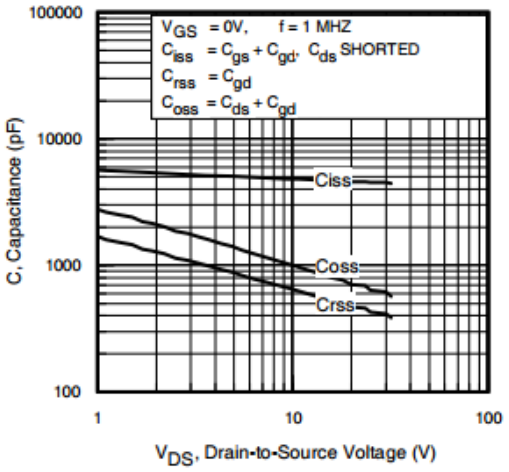


Fig 7. Typical Source-Drain Diode Forward Voltage

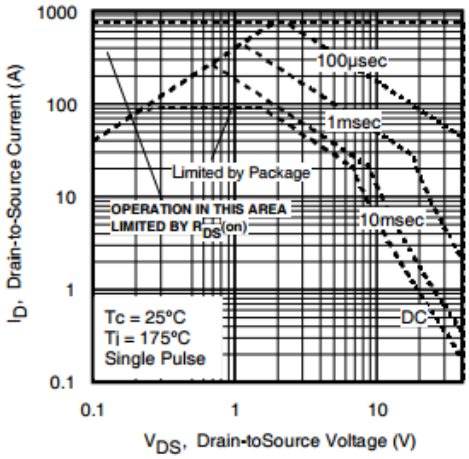


Fig 8. Maximum Safe Operating Area

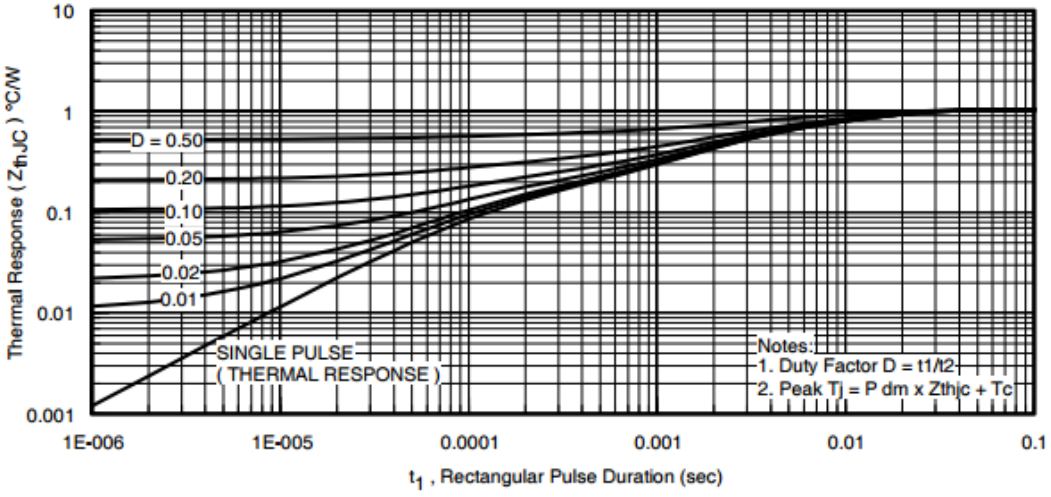


Fig 9. Maximum Effective Transient Thermal Impedance, Junction-to-Case