

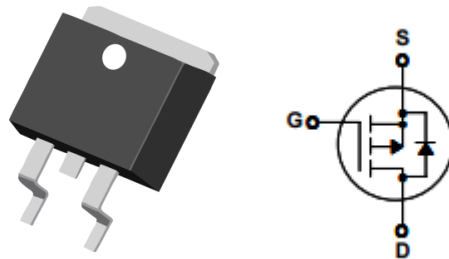
Description

This P-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
-60V	0.175Ω	-11.4A

- 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.



TO-263

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

Symbol	Parameter	Ratings	Units
VDS	Drain-Source Voltage	-60	V
VGS	Gate-Source Voltage	±20	V
ID	Continuous Drain Current-1	-11.4	A
	Continuous Drain Current-T=100°C	-8.05	
	Pulsed Drain Current2	-45.6	
EAS	Single Pulse Avalanche Energy3	160	mJ
PD	Power Dissipation4	53	W
TJ, TSTG	Operating and Storage Junction Temperature Range	-55 to +150	°C

Thermal Characteristics

Symbol	Parameter	Ratings	Units
RθJC	Thermal Resistance ,Junction to Case1	2.85	°C/W
RθJA	Thermal Resistance, Junction to Ambient1	62.5	

Package Marking and Ordering Information

Part NO.	Marking	Package
KSMB11P06	KSMB11P06	TO-263

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 _{DS} =0V, I _D =250μA	-60	—	—	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =0V, V _{GS} =32V	—	—	-1	μA
I _{GSS}	Gate-Source Leakage Current	V _{DS} =±20V, V _{GS} =0A	—	—	±100	nA
On Characteristics						
V _{GS(th)}	GATE-Source Threshold Voltage	V _{DS} =V _{DS} , I _D =250μA	-3.0	—	-5.0	V
R _{DS(on)}	Drain-Source On Resistance ²	V _{DS} =10V, I _D =6A	—	0.14	0.175	Ω
		V _{DS} =2.5V, I _D =5A	—	—	—	---
G _{FS}	Forward Transconductance	V _{DS} =5V, I _D =12A	—	5.1	—	S
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =15V, V _{GS} =0V, f=1MHz	—	420	550	pF
C _{oss}	Output Capacitance		—	195	250	
C _{rss}	Reverse Transfer Capacitance		—	45	60	
Switching Characteristics						
t _{d(on)}	Turn-On Delay Time	V _{DS} =20V, V _{GS} =10V, R _{GEN} =3.3Ω	—	6.5	25	ns
t _r	Rise Time		—	40	90	ns
t _{d(off)}	Turn-Off Delay Time		—	15	40	ns
t _f	Fall Time		—	45	100	ns
Q _g	Total Gate Charge	V _{GS} =4.5V, V _{DS} =20V, I _D =6A	—	13	17	nC
Q _{gs}	Gate-Source Charge		—	2.0	—	nC
Q _{gd}	Gate-Drain “Miller” Charge		—	6.3	—	nC
Drain-Source Diode Characteristics						
V _{SD}	Source-Drain Diode Forward Voltage ²	V _{GS} =0V, I _S =1A	—	—	-4.0	V
t _{rr}	Reverse Recovery Time	I _F =7A, di/dt=100A/μS	—	83	—	ns
Q _{rr}	Reverse Recovery Charge		—	0.26	—	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

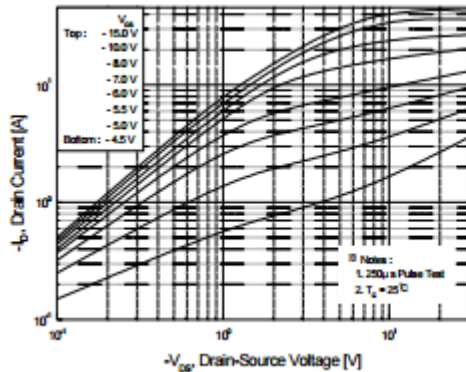


Fig. 1 Typical Output Characteristics,
TC = 25°

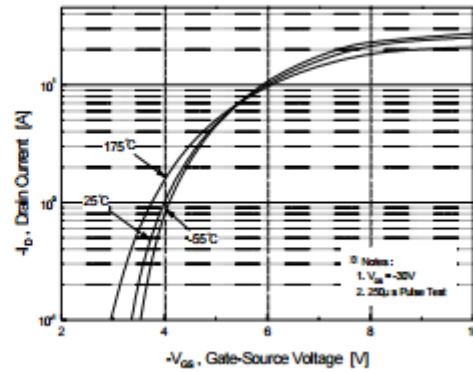


Fig. 2 Typical Transfer Characteristics

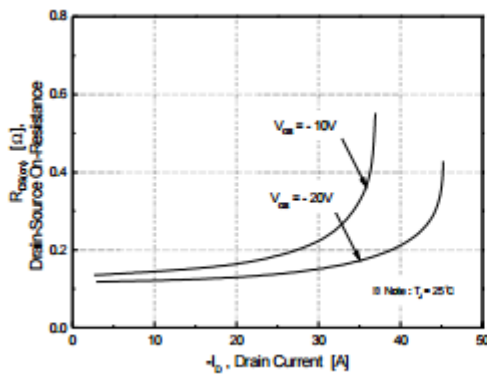


Fig. 3 Typical Output Characteristics,
TC = $150^\circ C$

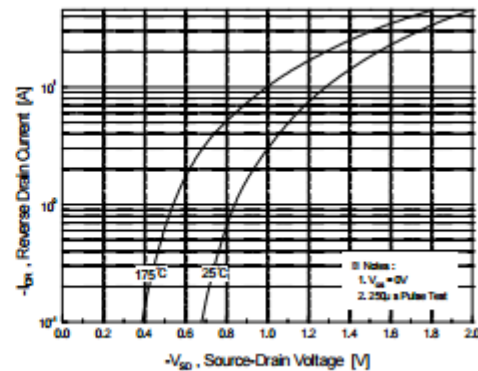


Fig. 4 - Normalized On-Resistance vs.
Temperature

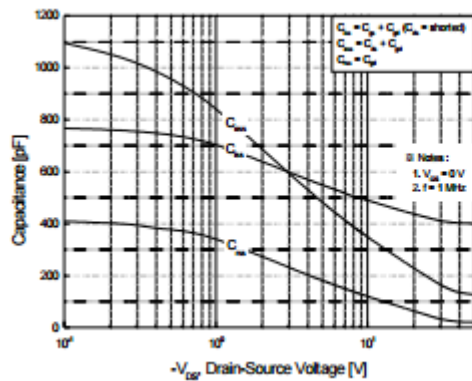


Fig. 5 - Typical Capacitance vs. Drain-to-Source Voltage

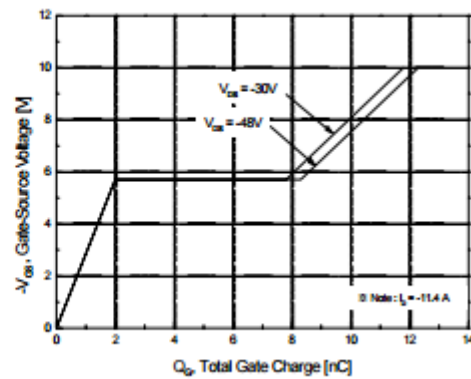


Fig. 6 - Typical Source-Drain Diode Forward Voltage

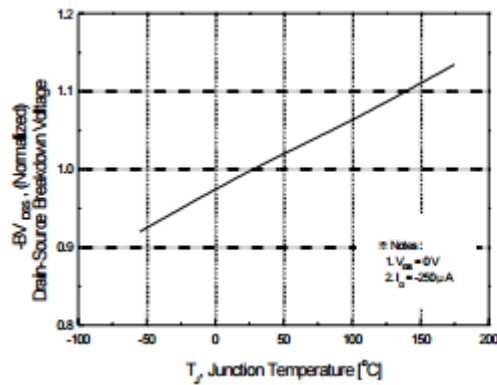


Fig. 7 - Typical Gate Charge vs. Gate-to-Source Voltage

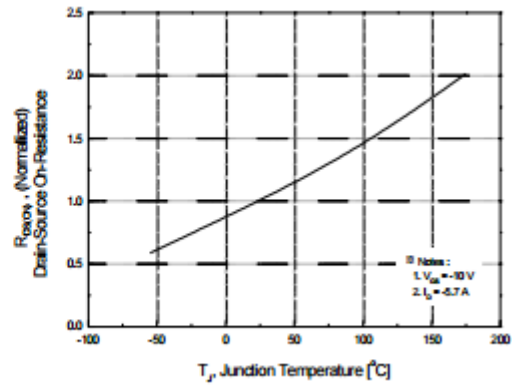


Fig. 8 - Maximum Safe Operating Area

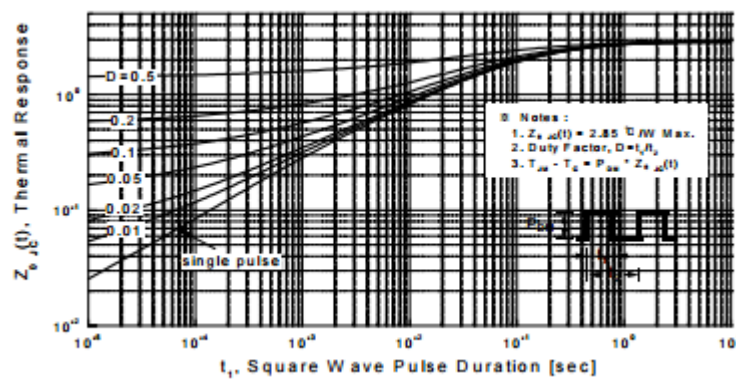


Fig. 9 - Maximum Effective Transient Thermal Impedance, Junction-to-Case