

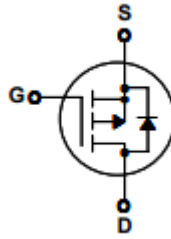
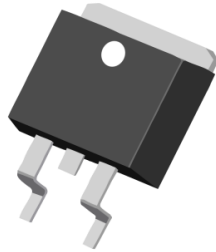
## Description

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	0.07Ω	-27A

- 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	-27	A
	Continuous Drain Current-T=100°C	-19.1	
	Pulsed Drain Current <sup>2</sup>	-108	
EAS	Single Pulse Avalanche Energy <sup>3</sup>	560	mJ
PD	Power Dissipation <sup>4</sup>	120	W
TJ, TSTG	Operating and Storage Junction Temperature Range	-55 to +175	°C

## Thermal Characteristics

Symbol	Parameter	Ratings	Units
ReJC	Thermal Resistance ,Junction to Case <sup>1</sup>	1.25	°C/W
ReJA	Thermal Resistance, Junction to Ambient <sup>1</sup>	62.5	

## Package Marking and Ordering Information

Part NO.	Marking	Package
KSMB27P06	KSMB27P06	TO-263

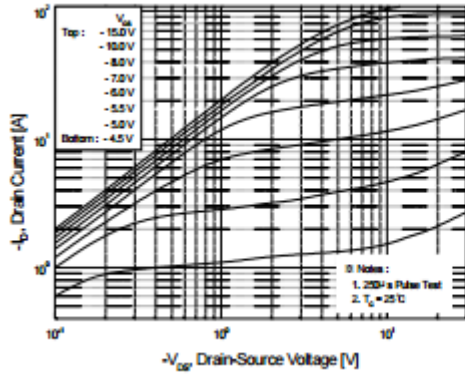
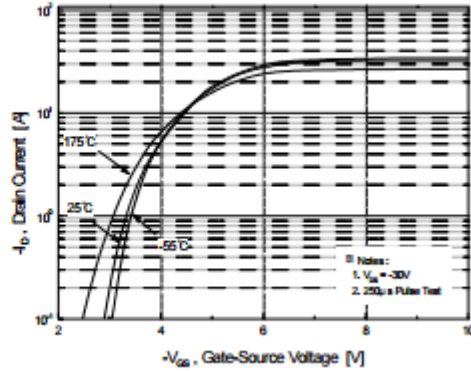
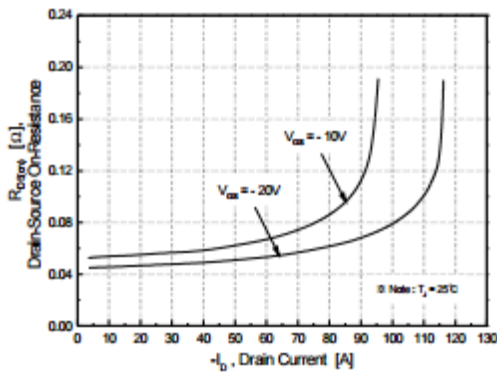
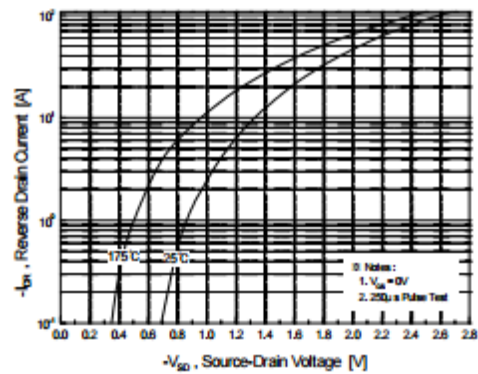
## Electrical Characteristics $T_c=25^\circ\text{C}$ unless otherwise noted

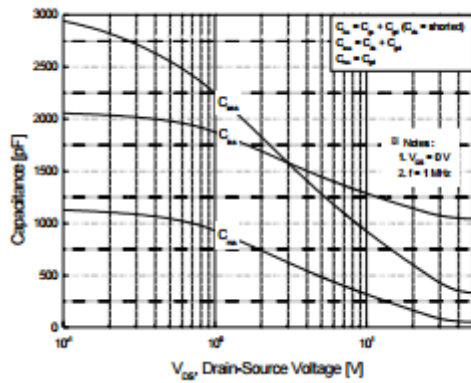
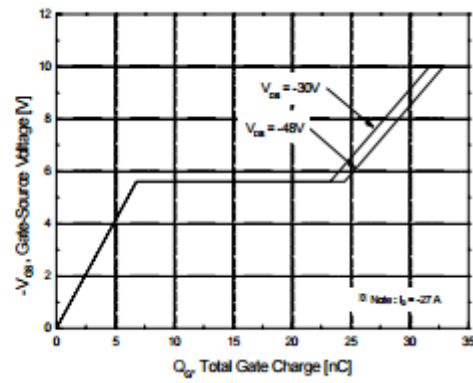
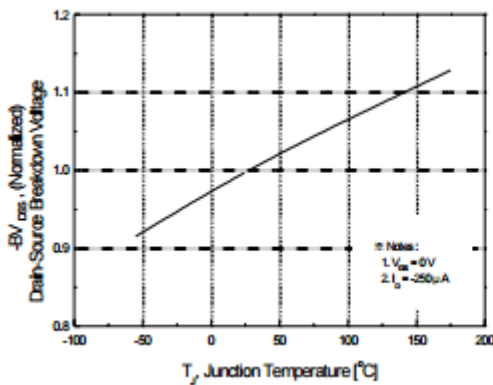
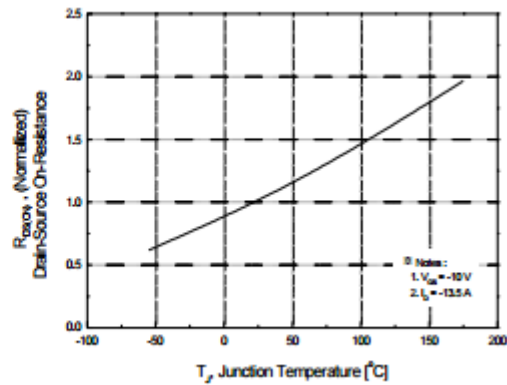
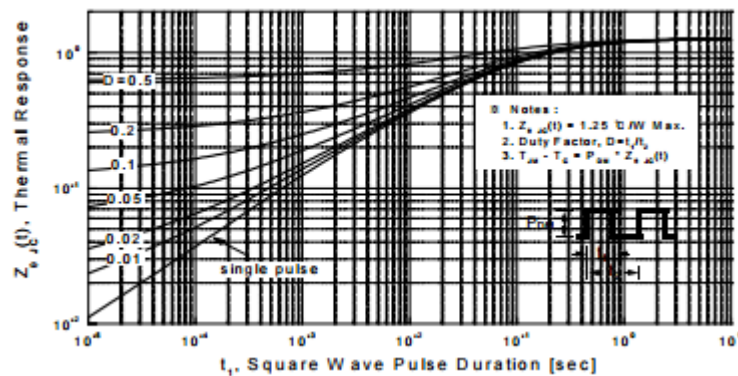
Symbol	Parameter	Conditions	Min	Typ	Max	Units
<b>Off Characteristics</b>						
$BV_{DSS}$	Drain-Source Breakdown Voltage	$V_{DS}=0V, I_D=250\mu A$	-60	—	—	V
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS}=0V, V_{GS}=32V$	—	—	-1	$\mu A$
$I_{GSS}$	Gate-Source Leakage Current	$V_{DS}=\pm 20V, V_{GS}=0A$	—	—	$\pm 100$	nA
<b>On Characteristics</b>						
$V_{GS(th)}$	GATE-Source Threshold Voltage	$V_{DS}=V_{DS}, I_D=250\mu A$	-2.0	—	-4.0	V
$R_{DS(on)}$	Drain-Source On Resistance <sup>2</sup>	$V_{DS}=10V, I_D=6A$	—	0.055	0.07	$\Omega$
		$V_{DS}=2.5V, I_D=5A$	—	—	—	---
$G_{FS}$	Forward Transconductance	$V_{DS}=5V, I_D=12A$	—	12.4	—	S
<b>Dynamic Characteristics</b>						
$C_{iss}$	Input Capacitance	$V_{DS}=15V, V_{GS}=0V,$ $f=1MHz$	—	1100	1400	pF
$C_{oss}$	Output Capacitance		—	510	660	
$C_{rss}$	Reverse Transfer Capacitance		—	120	155	
<b>Switching Characteristics</b>						
$t_{d(on)}$	Turn-On Delay Time	$V_{DS}=20V,$ $V_{GS}=10V, R_{GEN}=3.3\Omega$	—	18	45	ns
$t_r$	Rise Time		—	185	380	ns
$t_{d(off)}$	Turn-Off Delay Time	$V_{GS}=4.5V, V_{DS}=20V,$ $I_D=6A$	—	30	70	ns
$t_f$	Fall Time		—	90	190	ns
$Q_g$	Total Gate Charge	$V_{GS}=4.5V, V_{DS}=20V,$ $I_D=6A$	—	33	43	nC
$Q_{gs}$	Gate-Source Charge		—	6.8	—	nC
$Q_{gd}$	Gate-Drain "Miller" Charge		—	18	—	nC
<b>Drain-Source Diode Characteristics</b>						
$V_{SD}$	Source-Drain Diode Forward Voltage <sup>2</sup>	$V_{GS}=0V, I_S=1A$	—	—	-4.0	V
$t_{rr}$	Reverse Recovery Time	$I_F=7A, di/dt=100A/\mu S$	—	105	—	ns
$Q_{rr}$	Reverse Recovery Charge		—	0.41	—	nC

### Notes:

1. The data tested by surface mounted on a 1 inch<sup>2</sup> 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 °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**