

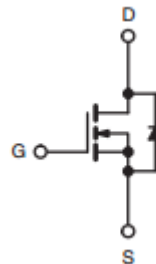
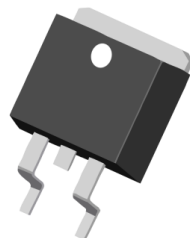
Description

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
500V	1.5Ω	5A

- 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	500	V
VGS	Gate-Source Voltage	±20	V
ID	Continuous Drain Current-1	5	A
	Continuous Drain Current- $T=100^{\circ}\text{C}$	2.9	
	Pulsed Drain Current ²	18	
EAS	Single Pulse Avalanche Energy ³	280	mJ
PD	Power Dissipation ⁴	74	W
TJ, TSTG	Operating and Storage Junction Temperature Range	-55 to +150	°C

Thermal Characteristics

KERSEMI ELECTRONIC CO.,LTD.

Symbol	Parameter	Ratings	Units
$R_{\theta JC}$	Thermal Resistance ,Junction to Case1	62	$^{\circ}\text{C}/\text{W}$
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient1	1.7	

Package Marking and Ordering Information

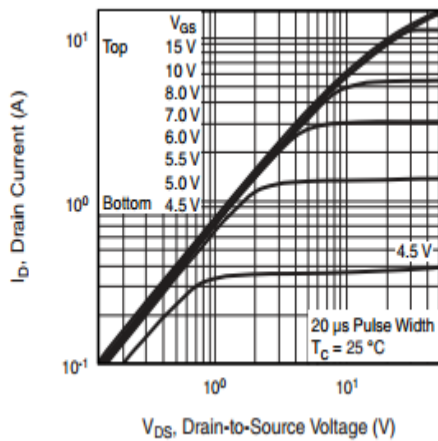
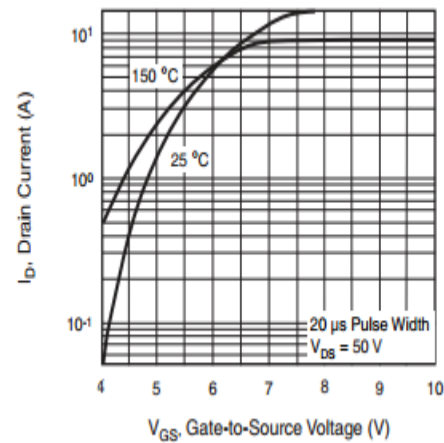
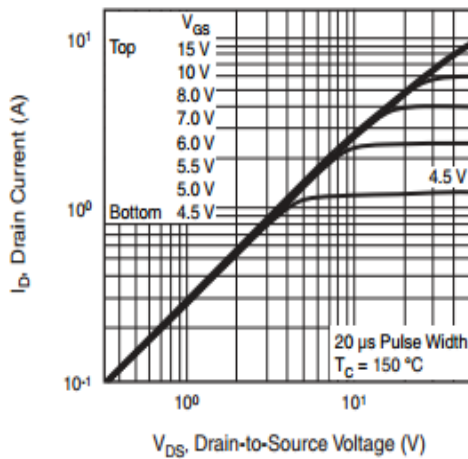
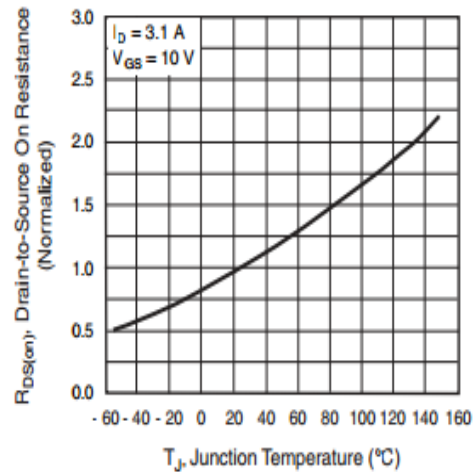
Part NO.	Marking	Package
KSMB830	KSMB830	TO-263

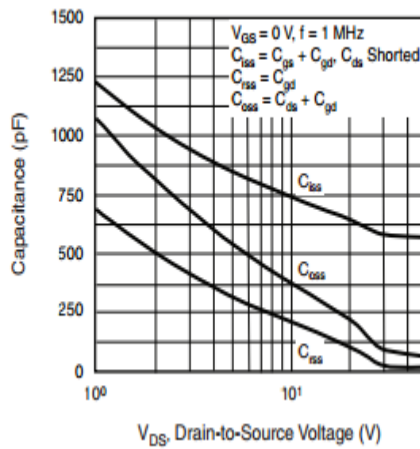
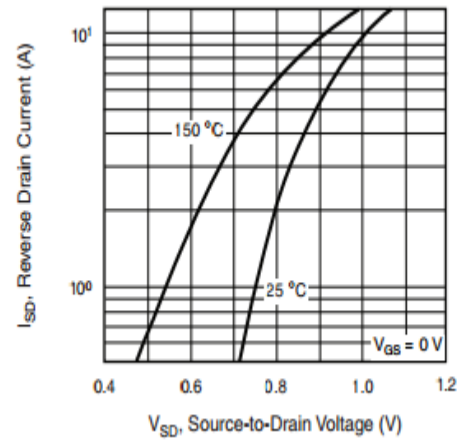
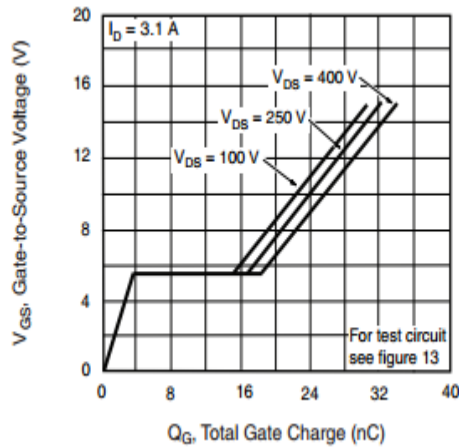
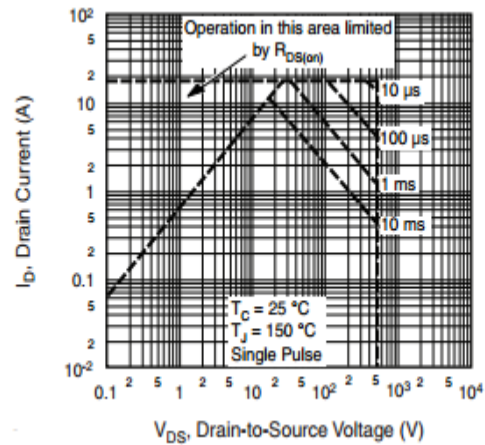
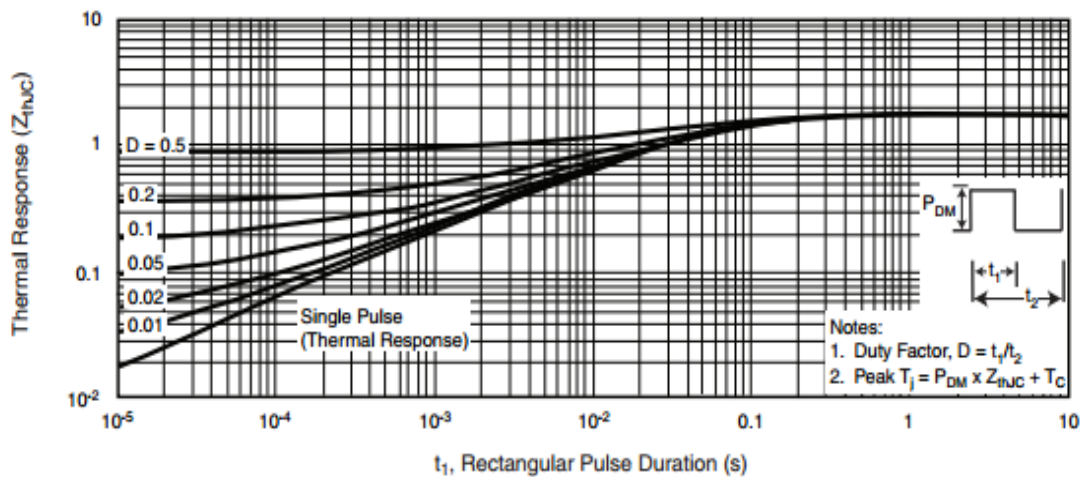
Electrical Characteristics $T_C=25^{\circ}\text{C}$ unless otherwise noted

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV _{DSS}	Drain-Sourctce Breakdown Voltage	V _{DS} =0V, I _D =250μA	500	—	—	v
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =0V, V _{DS} =32V	—	—	25	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	2.0	—	4.0	V
R _{DS(on)}	Drain-Source On Resistance ²	V _{DS} =10V, I _D =6A	—	—	1.5	Ω
		V _{DS} =2.5V, I _D =5A	—	—	—	
G _{FS}	Forward Transconductance	V _{DS} =5V, I _D =12A	2.5	—	—	S
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =15V, V _{GS} =0V, f=1MHz	—	610	—	pF
C _{oss}	Output Capacitance		—	160	—	
C _{rss}	Reverse Transfer Capacitance		—	68	—	
Switching Characteristics						
t _{d(on)}	Turn-On Delay Time	V _{DS} =20V, V _{GS} =10V, R _{GEN} =3.3Ω	—	8.2	—	ns
t _r	Rise Time		—	16	—	ns
t _{d(off)}	Turn-Off Delay Time		—	42	—	ns
t _f	Fall Time		—	16	—	ns
Q _g	Total Gate Charge	V _{GS} =4.5V, V _{DS} =20V, I _D =6A	—	—	38	nC
Q _{gs}	Gate-SourceCharge		—	—	5.0	nC
Q _{gd}	Gate-Drain “Miller” Charge		—	—	22	nC
Drain-Source Diode Characteristics						
V _{SD}	Source-Drain Diode ForwardVoltage ²	V _{GS} =0V, I _S =1A	—	—	1.6	V
t _{rr}	Reverse Recovery Time	I _F =7A, di/dt=100A/μS	—	320	640	ns
Q _{rr}	Reverse Recovery Charge		—	1.0	2.0	nC

KERSEMI ELECTRONIC CO.,LTD.
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,
 $T_C = 25^{\circ}$

Fig. 2 Typical Transfer Characteristics

Fig. 3 Typical Output Characteristics,
 $T_C = 150^{\circ}C$

Fig. 4 - Normalized On-Resistance vs.
Temperature

KERSMI ELECTRONIC CO.,LTD.

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