

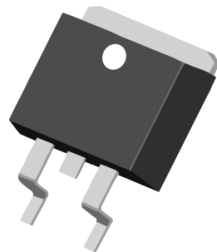
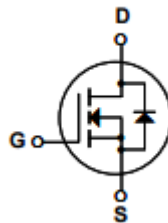
Description

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
55V	0.04Ω	29A

- 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	55	V
VGS	Gate-Source Voltage	±20	V
ID	Continuous Drain Current-1	29	A
	Continuous Drain Current-T=100°C	20	
	Pulsed Drain Current ²	100	
EAS	Single Pulse Avalanche Energy ³	130	mJ
PD	Power Dissipation ⁴	68	W
TJ, TSTG	Operating and Storage Junction Temperature Range	-55 to +175	°C

Thermal Characteristics

Symbol	Parameter	Ratings	Units
RθJC	Thermal Resistance, Junction to Case ¹	2.2	°C/W
RθJA	Thermal Resistance, Junction to Ambient ¹	40	

Package Marking and Ordering Information

Part NO.	Marking	Package
KSMBZ34N	KSMBZ34N	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	55	—	—	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	—	—	0.04	Ω
		V _{DS} =2.5V, I _D =5A	—	—	—	
G _{FS}	Forward Transconductance	V _{DS} =5V, I _D =12A	6.5	—	—	S
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =15V, V _{GS} =0V, f=1MHz	—	700	—	pF
C _{OSS}	Output Capacitance		—	240	—	
C _{rss}	Reverse Transfer Capacitance		—	100	—	
Switching Characteristics						
t _{d(on)}	Turn-On Delay Time	V _{DS} =20V, V _{GS} =10V, R _{GEN} =3.3Ω	—	7.0	—	ns
t _r	Rise Time		—	49	—	ns
t _{d(off)}	Turn-Off Delay Time	V _{GS} =10V, R _{GEN} =3.3Ω	—	31	—	ns
t _f	Fall Time		—	40	—	ns
Q _g	Total Gate Charge	V _{GS} =4.5V, V _{DS} =20V, I _D =6A	—	—	34	nC
Q _{gs}	Gate-SourceCharge		—	—	6.8	nC
Q _{gd}	Gate-Drain “Miller” Charge		—	—	14	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	—	57	86	ns
Q _{rr}	Reverse Recovery Charge		—	130	200	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

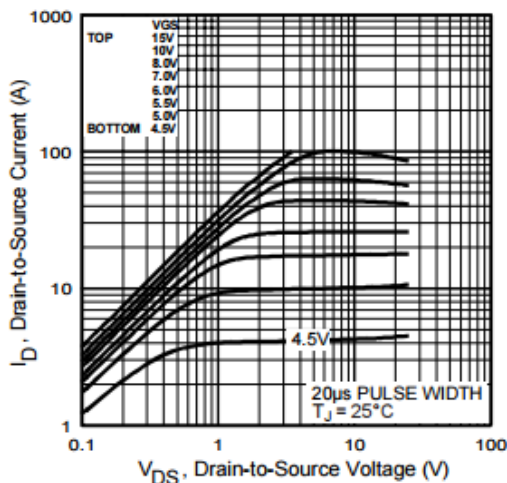


Fig. 1 Typical Output Characteristics,
TC = 25 °

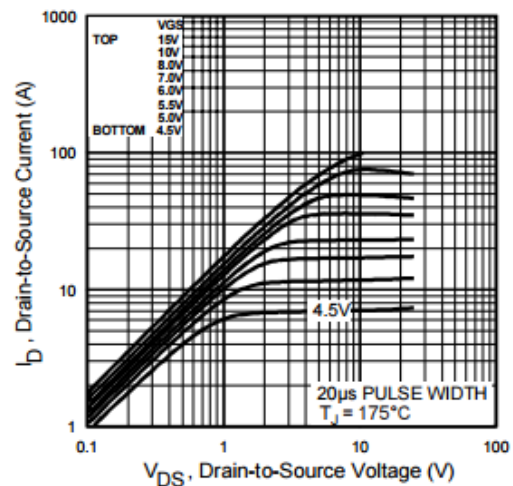


Fig. 2 Typical Transfer Characteristics

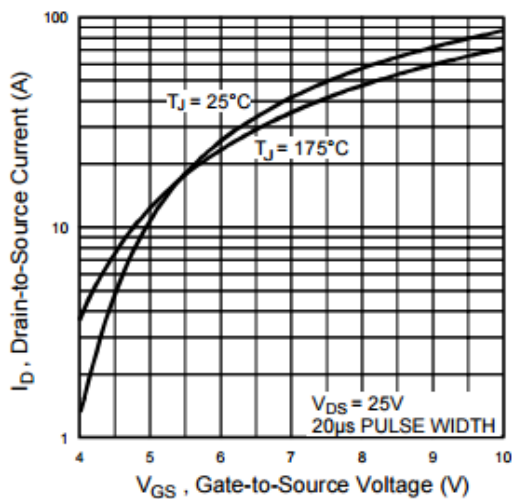


Fig. 3 Typical Output Characteristics,
TC = 150 °C

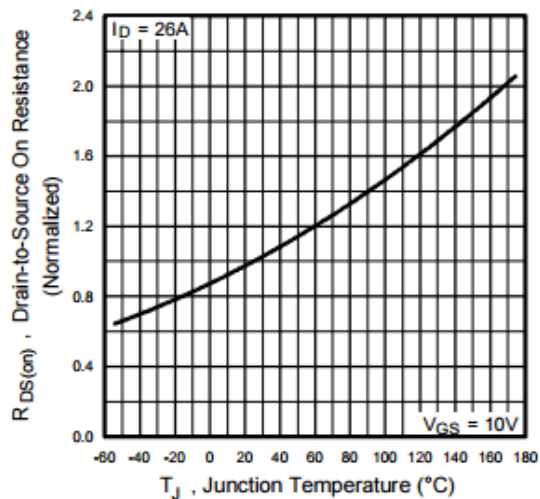


Fig. 4 - Normalized On-Resistance vs.
Temperature

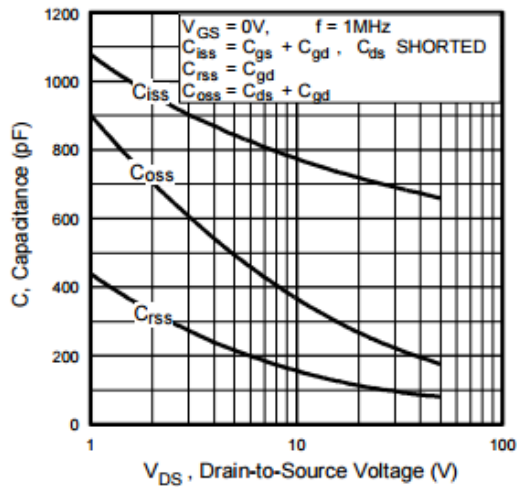


Fig. 5 - Typical Capacitance vs. Drain-to-Source Voltage

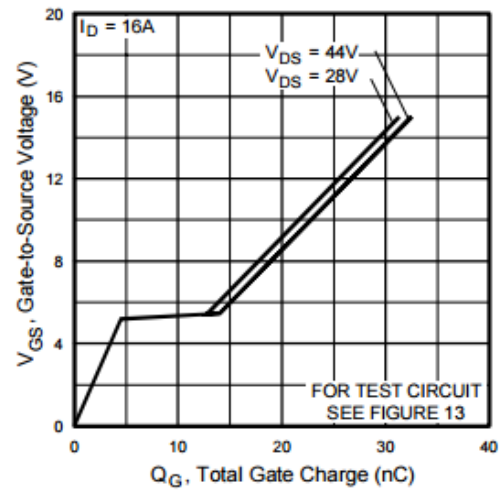


Fig. 6 - Typical Source-Drain Diode Forward Voltage

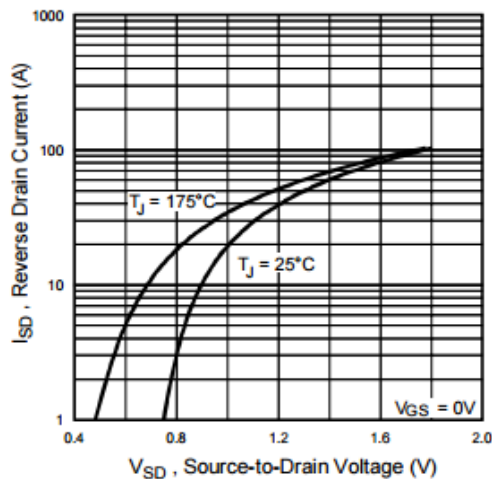


Fig. 7 - Typical Gate Charge vs. Gate-to-Source Voltage

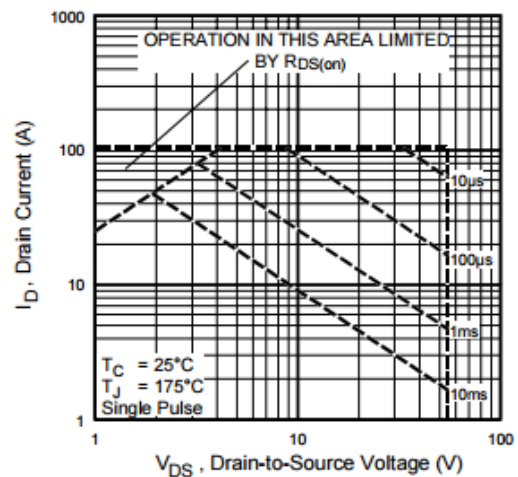


Fig. 8 - Maximum Safe Operating Area

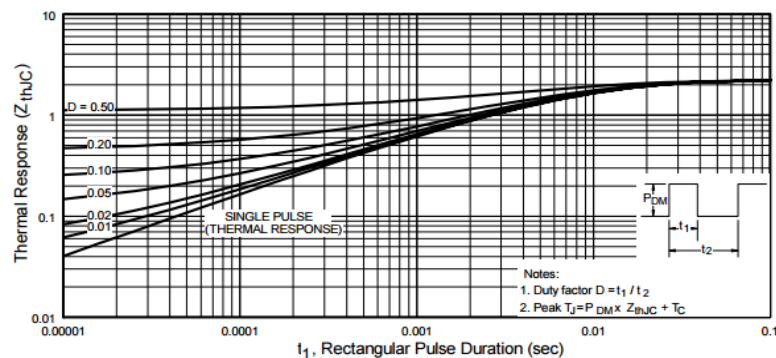


Fig. 9 - Maximum Effective Transient Thermal Impedance, Junction-to-Case