

GSM4184

40V N-Channel MOSFETs

Product Description

These N-Channel enhancement mode power field effect transistors are using trench DMOS technology. This advanced technology has been especially tailored to minimize on-state resistance, provide superior switching performance, and withstand high energy pulse in the avalanche and commutation mode.

These devices are well suited for high efficiency fast switching applications.

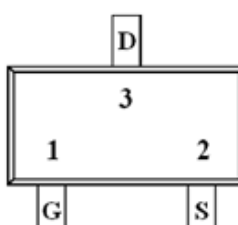
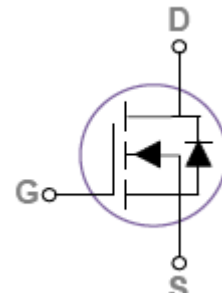
Features

- 40V, 3.6A, $R_{DS(ON)}=58m\Omega@V_{GS}=10V$
- Improved dv/dt capability
- Fast switching
- Green Device Available

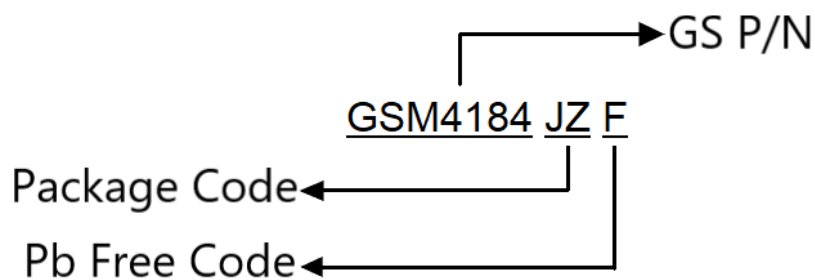
Applications

- MB / VGA / Vcore
- Load Switch
- Hand-Held instrument

Packages & Pin Assignments

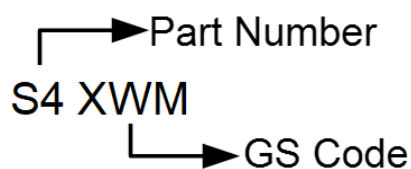
GSM4184JZF (SOT-23)	
 <p>Top Views</p>	
	
Pin	Description
1	Gate
2	Source
3	Drain

Ordering Information



Part Number	Package	Quantity
GSM4184JZF	SOT-23	3000pcs

Marking Information



Part Number	Part Marking	Quantity
GSM4184JZF	S4XWM	3000pcs

Absolute Maximum Ratings

T_C=25°C Unless otherwise noted

Symbol	Parameter	Typical	Unit
V _{DS}	Drain-Source Voltage	40	V
V _{GS}	Gate-Source Voltage	±20	V
I _D	Continuous Drain Current	T _A =25°C	3.6
		T _A =70°C	2.8
I _{DM}	Pulsed Drain Current ¹	14	A
P _D	Power Dissipation	T _A =25°C	1.2
		T _A =70°C	0.8
T _J	Operating Junction Temperature Range	-55 to +150	°C
T _{STG}	Storage Temperature Range	-55 to +150	°C
R _{θJA}	Thermal Resistance-Junction to Ambient	105	°C/W

Electrical Characteristics

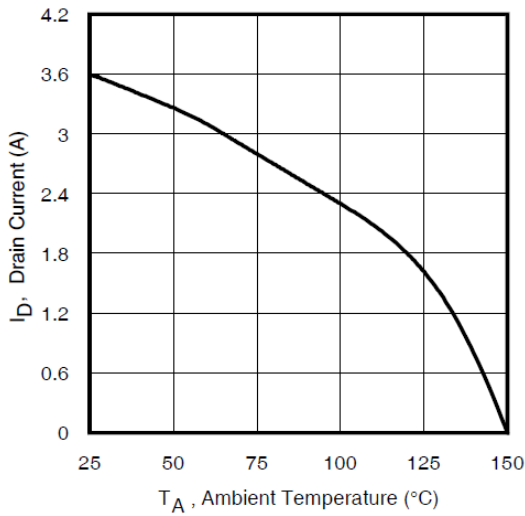
T_J=25°C Unless otherwise noted

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250uA	40			V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250uA	1	1.7	2.5	V
I _{GSS}	Gate-Source Leakage Current	V _{DS} =0V, V _{GS} =±20V			±100	nA
I _{DSS}	Drain-Source Leakage Current	V _{DS} =40V, V _{GS} =0V			1	uA
I _S	Continuous Source Current	V _G =V _D =0V, Force Current			1	A
R _{DS(on)}	Drain-Source On-Resistance	V _{GS} =10V, I _D =3.6A		47	58	mΩ
		V _{GS} =4.5V, I _D =2.9A		61	76	
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _S =3A			1	V
Dynamic						
Q _g	Total Gate Charge ^{2,3}	V _{DS} =20V, V _{GS} =4.5V, I _D =3.6A		2.6		nC
Q _{gs}	Gate-Source Charge ^{2,3}			0.7		
Q _{gd}	Gate-Drain Charge ^{2,3}			1.4		
C _{iss}	Input Capacitance	V _{DS} =25V, V _{GS} =0V, f=1MHz		266		pF
C _{oss}	Output Capacitance			49		
C _{rss}	Reverse Transfer Capacitance			29		
t _{d(on)}	Turn-On Time ^{2,3}	V _{DD} =20V, I _D =1A, V _{GS} =4.5V, R _G =6.8Ω		5.1		ns
t _r				5.4		
t _{d(off)}	Turn-Off Time ^{2,3}			6.4		
t _f				4.3		

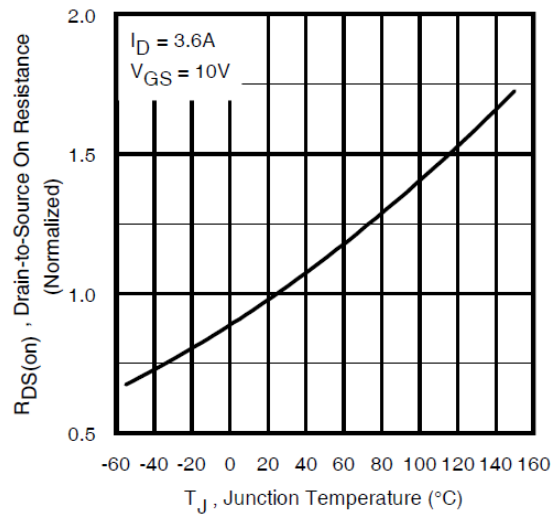
Note :

1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. The data tested by pulsed , pulse width ≤ 300us , duty cycle ≤ 2%.
3. Essentially independent of operating temperature.

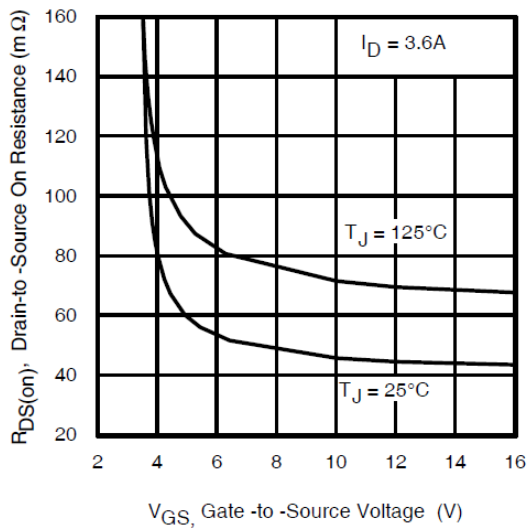
Typical Performance Characteristics



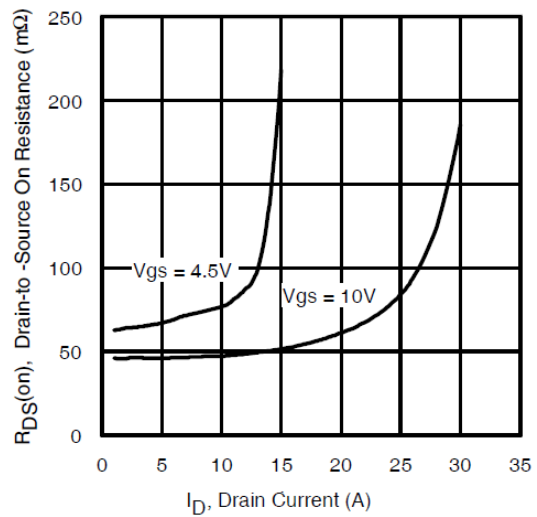
Drain Current Vs. Ambient Temperature



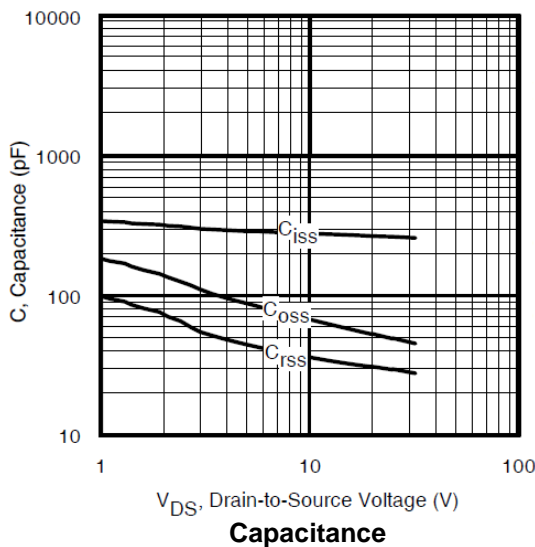
On-Resistance vs. Junction Temperature



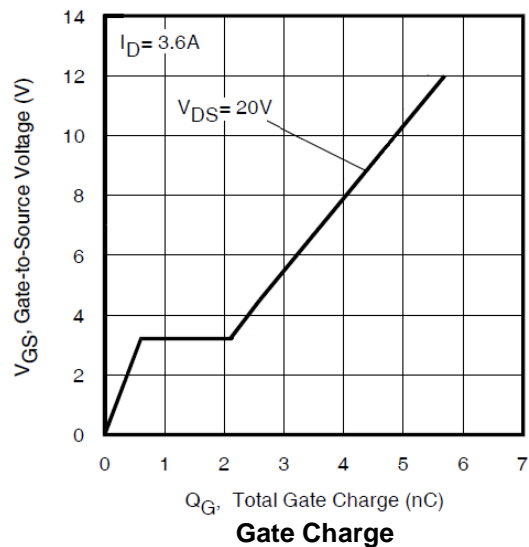
On-Resistance vs. Gate to source Voltage



On-Resistance vs. Drain Current



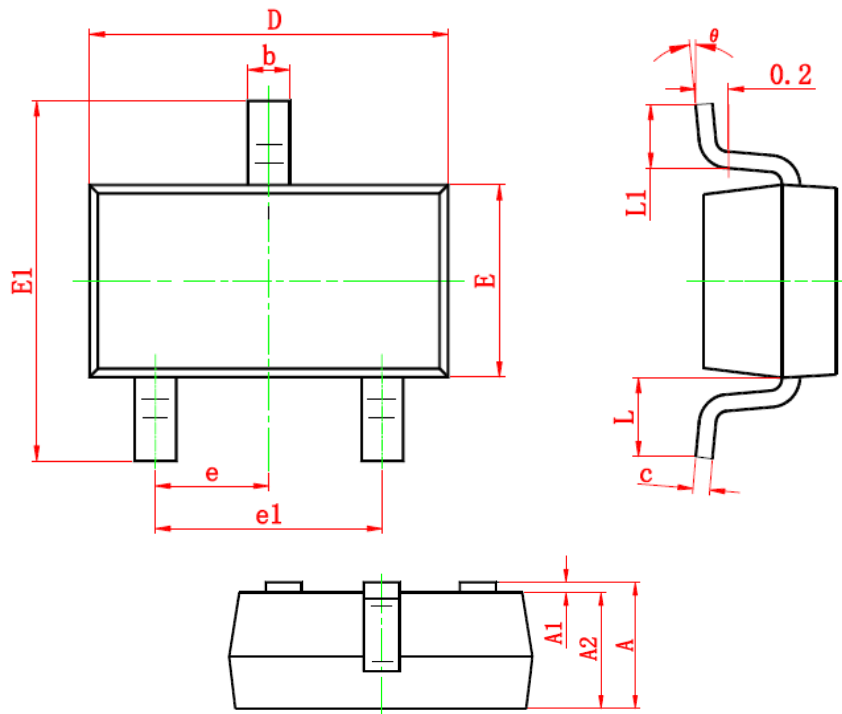
Capacitance



Gate Charge

Package Dimension

SOT-23









Dimensions				
Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	0.900	1.200	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.100	0.035	0.039
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	6°

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