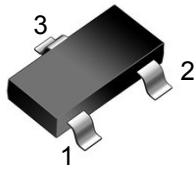
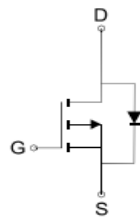


**SOT-23**

**MARKING:** S3


P-Channel MOSFET

**Features**

Advanced trench process technology  
 High density cell design for Ultra Low On-Resistance  
 Halogen free and RoHS compliant

**Mechanical Data**

SOT-23 Small Outline Plastic Package  
 EpoxyUL:94V-0

**Maximum Ratings & Thermal Characteristics**

(Ratings at 25°C ambient temperature unless otherwise specified.)

Symbol	Parameter	Rating	Unit	
V <sub>DS</sub>	Drain-Source Breakdown Voltage	-30	V	
V <sub>GS</sub>	Gate-Source Voltage	±20	V	
T <sub>J</sub>	Maximum Junction Temperature	150	°C	
T <sub>STG</sub>	Storage Temperature Range	-55 to 150	°C	
I <sub>S</sub>	Diode Continuous Forward Current	T <sub>c</sub> =25°C	-3	A
I <sub>DM</sub>	Pulse Drain Current Tested	T <sub>c</sub> =25°C	-13	A
I <sub>D</sub>	Continuous Drain Current@GS=10V	T <sub>c</sub> =25°C	-3	A
P <sub>D</sub>	Maximum Power Dissipation	T <sub>c</sub> =25°C	0.35	W
R <sub>θJA</sub>	Thermal Resistance Junction-to-Ambient		357	°C/W

**Electrical Characteristics**

(Ratings at 25°C ambient temperature unless otherwise specified.)

Symbol	Parameter	Condition	Min	Typ	Max	Unit
BV <sub>(BR)DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>D</sub> =-250μA	-30	--	--	V
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> =-20V, V <sub>GS</sub> =0V	--	--	-1	μA
I <sub>GSS</sub>	Gate-Body Leakage Current	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V	--	--	±100	nA
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =-250μA	-1.0	-1.5	-3.0	V
R <sub>DS(on)</sub>	Drain-Source On-State Resistance	V <sub>GS</sub> =-10V, I <sub>D</sub> =-3A	--	73	190	mΩ
		V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-2A	--	118	330	mΩ

**Dynamic Electrical Characteristics**

C <sub>ISS</sub>	Input Capacitance	V <sub>DS</sub> =-10V, V <sub>GS</sub> =0V, f=1MHz	--	365	--	pF
C <sub>OSS</sub>	Output Capacitance		--	60	--	pF
C <sub>RSS</sub>	Reverse Transfer Capacitance		--	45	--	pF

**Switching Characteristics**

Q <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> =-15V, I <sub>D</sub> =-3A, V <sub>GS</sub> =-10V	--	7.5	--	nC
Q <sub>gs</sub>	Gate Source Charge		--	1.6	--	nC
Q <sub>gd</sub>	Gate Drain Charge		--	1.2	--	nC
t <sub>d(on)</sub>	Turn-on Delay Time	V <sub>DS</sub> =-15V, I <sub>D</sub> =-1A, V <sub>GS</sub> =-10V, R <sub>G</sub> =2.5Ω	--	3.3	--	nS
t <sub>r</sub>	Turn-on Rise Time		--	18	--	nS
t <sub>d(off)</sub>	Turn-Off Delay Time		--	18	--	nS
t <sub>f</sub>	Turn-Off Fall Time		--	23	--	nS

**Source- Drain Diode Characteristics**

V <sub>SD</sub>	Forward on voltage	T <sub>j</sub> =25°C, I <sub>S</sub> =-3A,	--	--	-1.2	V
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## Ratings and Characteristic Curves

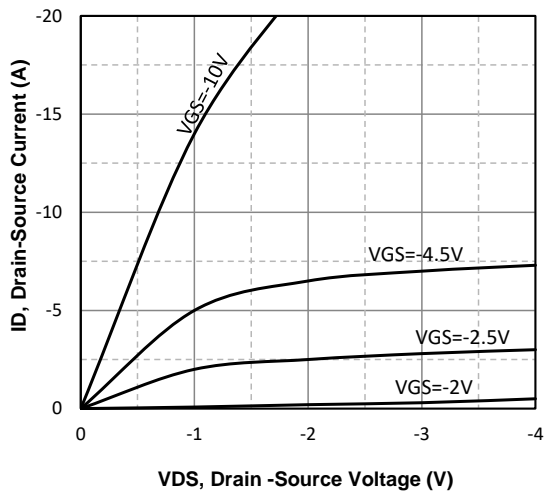


Fig1. Typical Output Characteristics

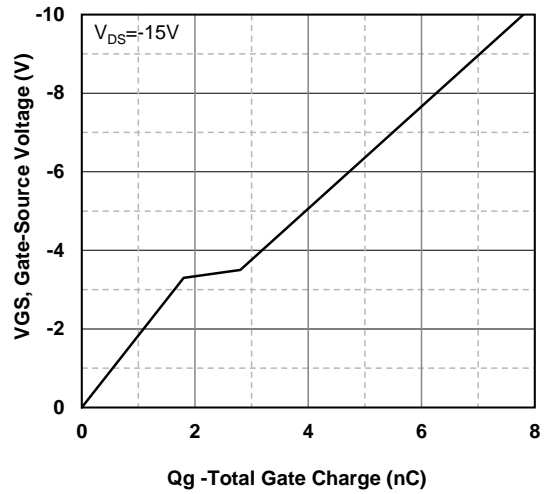


Fig2. Typical Gate Charge Vs. Gate-Source Voltage

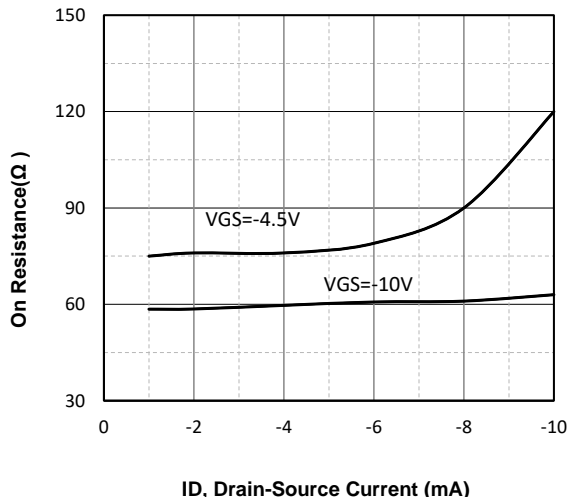


Fig3. Drain-Source on Resistance

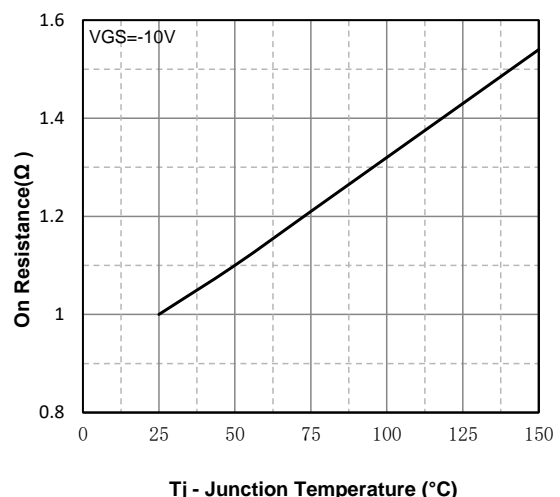


Fig4. Normalized On-Resistance Vs. Temperature

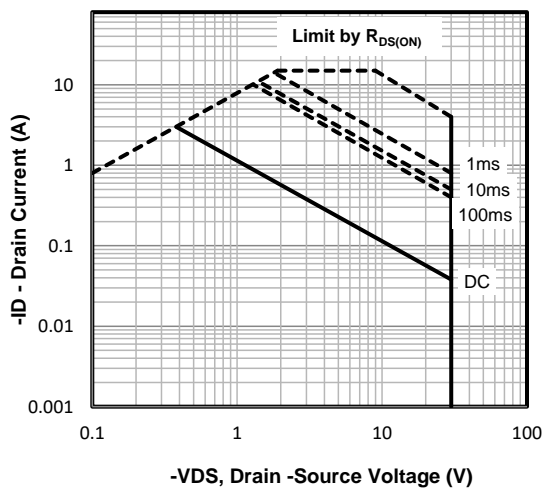


Fig5. Maximum Safe Operating Area

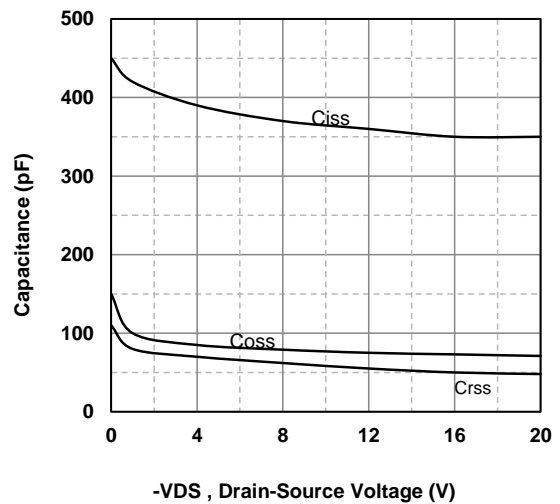
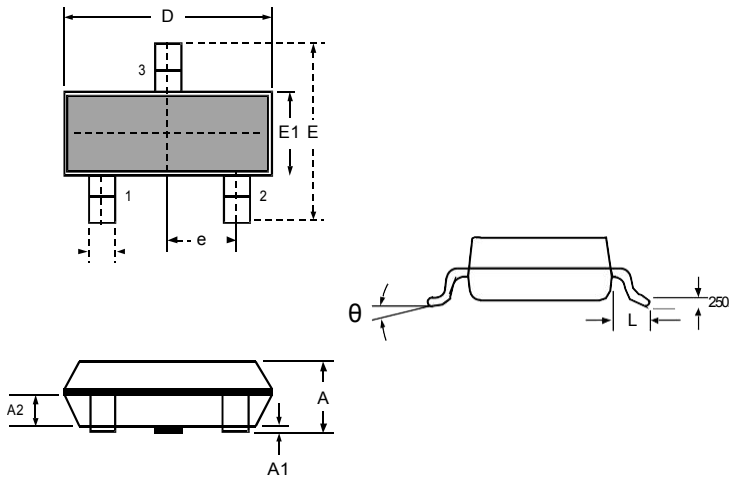


Fig6 Typical Capacitance Vs. Drain-Source Voltage

### Summary of Packing Options

Package	Packing Description	Packing Quantity	Industry Standard
SOT-23	Tape/Reel, 7" reel	3000	EIA-481-1

### Package Outline Dimensions: SOT-23



DIMENSIONS

SYMBOL	MILLIMETER		INCHES	
	MIN	MAX	MIN	MAX
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
D	2.800	3.000	0.110	0.118
b	0.300	0.500	0.012	0.020
E	2.250	2.550	0.089	0.100
E1	1.200	1.400	0.047	0.055
e	0.950 BSC		0.037 BSC	
L	0.300	0.500	0.012	0.020
θ	0	8°	0	8°

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[STF5N65M6](#) [IRF40H233XTMA1](#) [STU5N65M6](#) [DMN6022SSD-13](#) [DMN13M9UCA6-7](#) [DMTH10H4M6SPS-13](#) [IPS60R360PFD7SAKMA1](#)  
[DMN2990UFB-7B](#) [SSM3K35CT,L3F](#) [IPLK60R1K0PFD7ATMA1](#) [2N7002W-G](#) [MCAC30N06Y-TP](#) [IPWS65R035CFD7AXKSA1](#)  
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