



### SOT-23 Plastic-Encapsulate MOSFETS

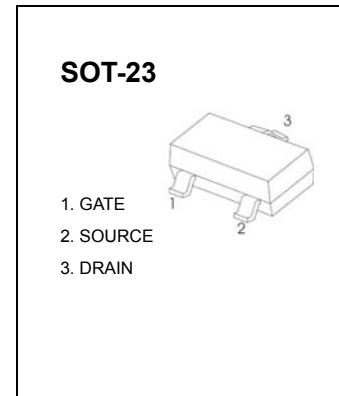
P-Channel 8-V(D-S) MOSFET

#### FEATURE

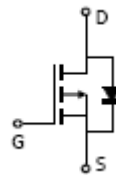
TrenchFET Power MOSFET

#### APPLICATIONS

- Load Switch for Portable Devices
- DC/DC Converter
- **Pb-Free package is available**  
RoHS product for packing code suffix "G"  
Halogen free product for packing code suffix "H"



#### MARKING: S5



#### Maximum ratings ( $T_a=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	-8	V
Gate-Source Voltage	$V_{GS}$	$\pm 8$	
Continuous Drain Current	$I_D$	-4.1	A
Continuous Source-Drain Diode Current	$I_S$	-0.8	
Maximum Power Dissipation	$P_D$	0.35	W
Thermal Resistance from Junction to Ambient( $t \leq 10s$ )	$R_{\theta JA}$	357	$^{\circ}\text{C}/\text{W}$
Junction Temperature	$T_J$	150	$^{\circ}\text{C}$
Storage Temperature	$T_{STG}$	-50 ~ +150	



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#### Electrical characteristics (T<sub>a</sub>=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
<b>Static</b>						
Drain-source breakdown voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = -250μA	-8			V
Gate-source threshold voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250μA	-0.5		-0.9	
Gate-source leakage	I <sub>GSS</sub>	V <sub>DS</sub> = 0V, V <sub>GS</sub> = ±8V			±100	nA
Zero gate voltage drain current	I <sub>DSS</sub>	V <sub>DS</sub> = -8V, V <sub>GS</sub> = 0V			-1	μA
Drain-source on-state resistance <sup>a</sup>	R <sub>DS(on)</sub>	V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -3.5A			0.045	Ω
		V <sub>GS</sub> = -2.5V, I <sub>D</sub> = -3A			0.060	
		V <sub>GS</sub> = -1.8V, I <sub>D</sub> = -2.0A			0.090	
Forward transconductance <sup>a</sup>	g <sub>fs</sub>	V <sub>DS</sub> = -5V, I <sub>D</sub> = -4.1A	6			S
<b>Dynamic</b>						
Input capacitance <sup>b,c</sup>	C <sub>iss</sub>	V <sub>DS</sub> = -4V, V <sub>GS</sub> = 0V, f = 1MHz		740		pF
Output capacitance <sup>b,c</sup>	C <sub>oss</sub>			290		
Reverse transfer capacitance <sup>b,c</sup>	C <sub>rss</sub>			190		
Total gate charge <sup>b</sup>	Q <sub>g</sub>	V <sub>DS</sub> = -4V, V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -4.1A		7.8	15	nC
		V <sub>DS</sub> = -4V, V <sub>GS</sub> = -2.5V, I <sub>D</sub> = -4.1A		4.5	9	
Gate-source charge <sup>b</sup>	Q <sub>gs</sub>			1.2		
Gate-drain charge <sup>b</sup>	Q <sub>gd</sub>			1.6		
Gate resistance <sup>b,c</sup>	R <sub>g</sub>	f = 1MHz	1.4	7	14	Ω
Turn-on delay time <sup>b,c</sup>	t <sub>d(on)</sub>	V <sub>DD</sub> = -4V, R <sub>L</sub> = 1.2Ω, I <sub>D</sub> ≈ -3.3A, V <sub>GEN</sub> = -4.5V, R <sub>g</sub> = 1Ω		13	20	ns
Rise time <sup>b,c</sup>	t <sub>r</sub>			35	53	
Turn-off Delay time <sup>b,c</sup>	t <sub>d(off)</sub>			32	48	
Fall time <sup>b,c</sup>	t <sub>f</sub>			10	20	
Turn-on delay time <sup>b,c</sup>	t <sub>d(on)</sub>	V <sub>DD</sub> = -4V, R <sub>L</sub> = 1.2Ω, I <sub>D</sub> ≈ -3.3A, V <sub>GEN</sub> = -8V, R <sub>g</sub> = 1Ω		5	10	
Rise time <sup>b,c</sup>	t <sub>r</sub>			11	17	
Turn-off delay time <sup>b,c</sup>	t <sub>d(off)</sub>			22	33	
Fall time <sup>b,c</sup>	t <sub>f</sub>			16	24	
<b>Drain-source body diode characteristics</b>						
Continuous source-drain diode current	I <sub>S</sub>	T <sub>C</sub> = 25°C			-1.4	A
Pulse diode forward current <sup>a</sup>	I <sub>SM</sub>				-10	
Body diode voltage	V <sub>SD</sub>	I <sub>F</sub> = -3.3A		-0.8	-1.2	V

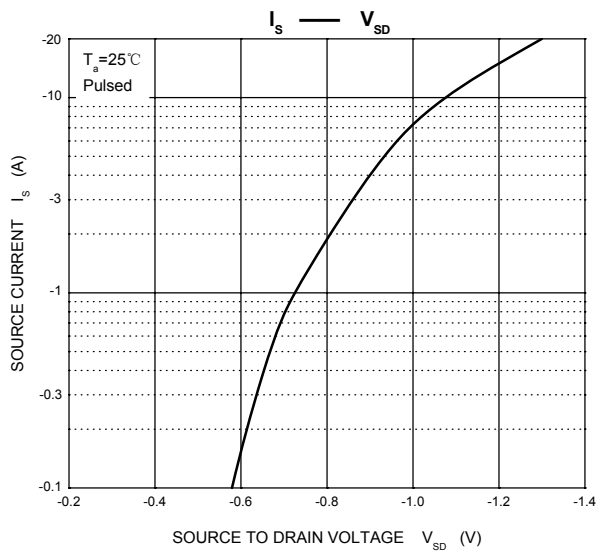
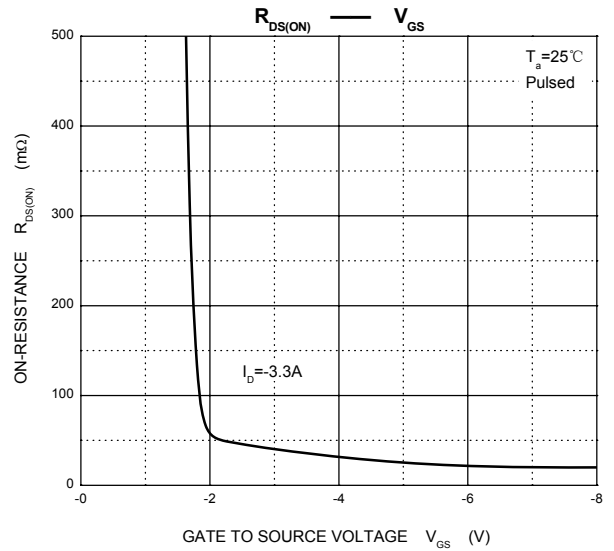
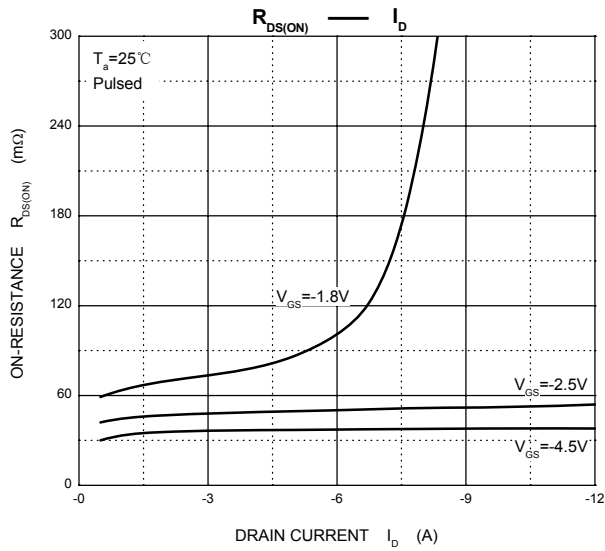
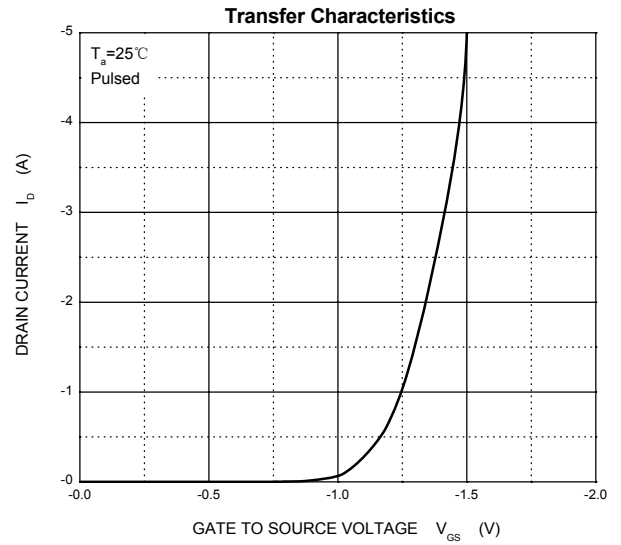
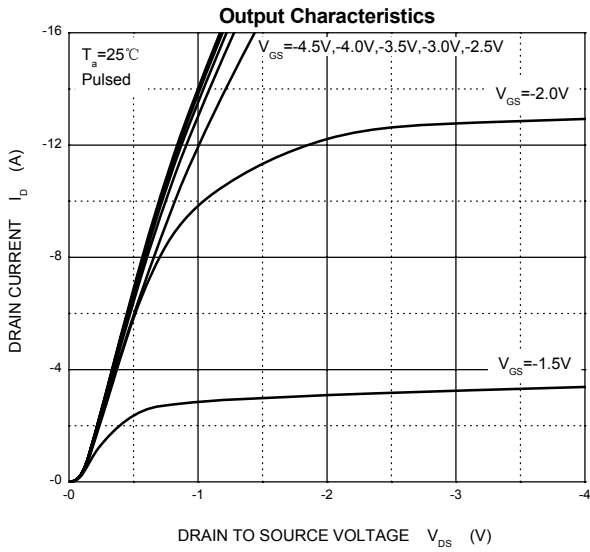
**Note :**

- a. Pulse Test ; Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
- b. Guaranteed by design, not subject to production testing.
- c. These parameters have no way to verify.



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# Typical Characteristics

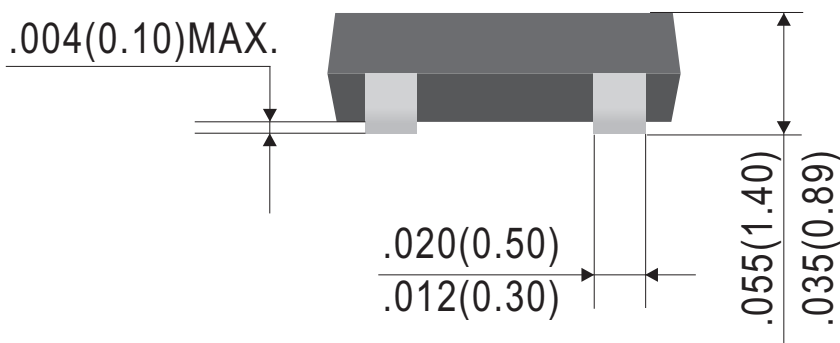
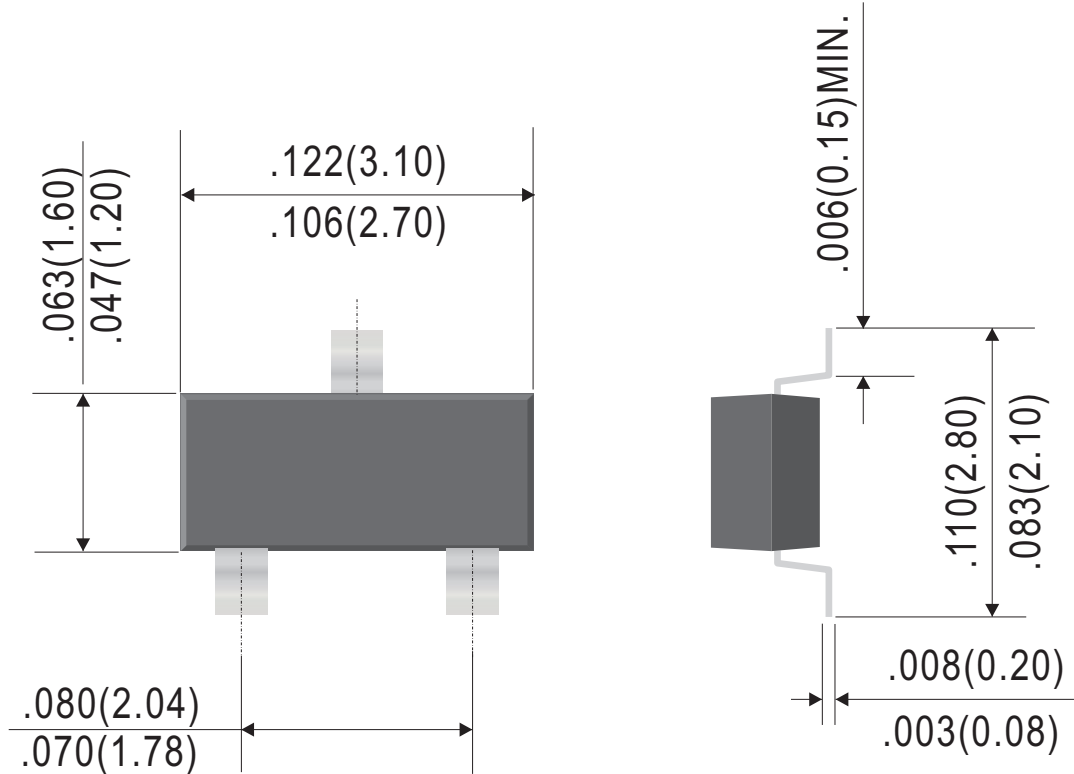




## SOT-23 Plastic-Encapsulate MOSFETS

# Outline Drawing

# SOT-23



Dimensions in inches and (millimeters)

Rev.D