



SOT-23 Plastic-Encapsulate MOSFETS

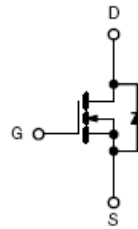
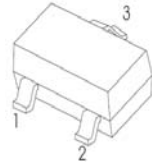
N-Channel 20-V(D-S) MOSFET

APPLICATIONS

- DC/DC Converters
- Load Switching for Portable Applications
- **Pb-Free package is available**
RoHS product for packing code suffix "G"
Halogen free product for packing code suffix "H"

SOT-23

1. GATE
2. SOURCE
3. DRAIN



MARKING: S12

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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	± 8.0	
Continuous Drain Current	I_D	5	A
Pulsed Drain Current	I_{DM}	20	
Continuous Source-Drain Diode Current	I_S	1.04	
Maximum Power Dissipation	P_D	0.35	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	357	$^\circ\text{C}/\text{W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-50 ~+150	



SOT-23 Plastic-Encapsulate MOSFETS

Electrical characteristics (T_a=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Drain-source breakdown voltage	V _{(BR) DSS}	V _{GS} = 0V, I _D =250μA	20			V
Gate-source leakage	I _{GSS}	V _{DS} =0V, V _{GS} =±8V			±100	nA
Zero gate voltage drain current	I _{DSS}	V _{DS} =20V, V _{GS} =0V			1.0	μA
Gate-source threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.45		1.0	V
Drain-source on-state resistance ^a	R _{DS(on)}	V _{GS} =4.5V, I _D =5.0A			0.0318	Ω
		V _{GS} =2.5V, I _D =4.7A			0.0356	
		V _{GS} =1.8V, I _D =4.3A			0.0414	
Forward tranconductance ^a	g _{fs}	V _{DS} =10V, I _D =5.0A	6			S
Dynamic^b						
Input capacitance	C _{iss}	V _{DS} =10V, V _{GS} =0V, f =1MHz		865		pF
Output capacitance	C _{oss}			105		
Reverse transfer capacitance	C _{rss}			55		
Gate resistance	R _g	f =1MHz	0.5		4.8	Ω
Turn-on delay Time	t _{d(on)}	V _{GEN} =5V, V _{DD} =10V, I _D =4A, R _G =1Ω, R _L =2.2Ω			10	ns
Rise time	t _r				20	
Turn-off Delay time	t _{d(off)}				32	
Fall yime	t _f				12	
Drain-source body diode characteristics						
Forward diode voltage	V _{SD}	V _{GS} =0V, I _S =4A		0.75	1.2	V

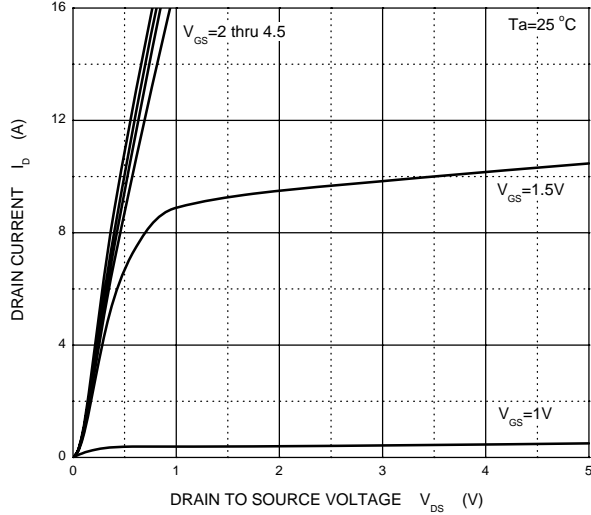
Notes :

- Pulse Test : pulse width ≤300μs, duty cycle ≤2%.
- These parameters have no way to verify.

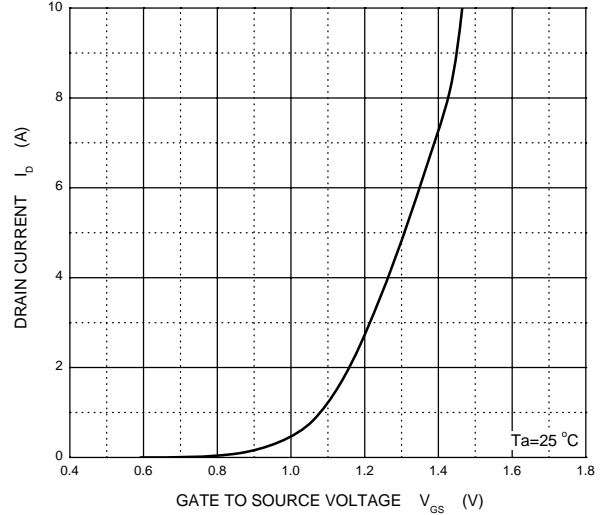


Typical Characteristics

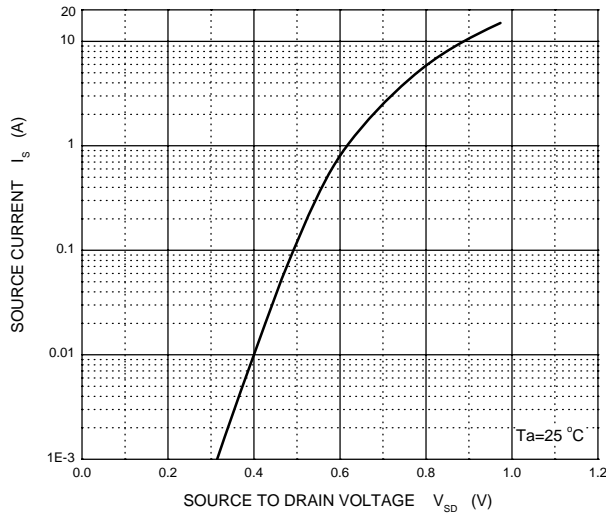
Output Characteristics



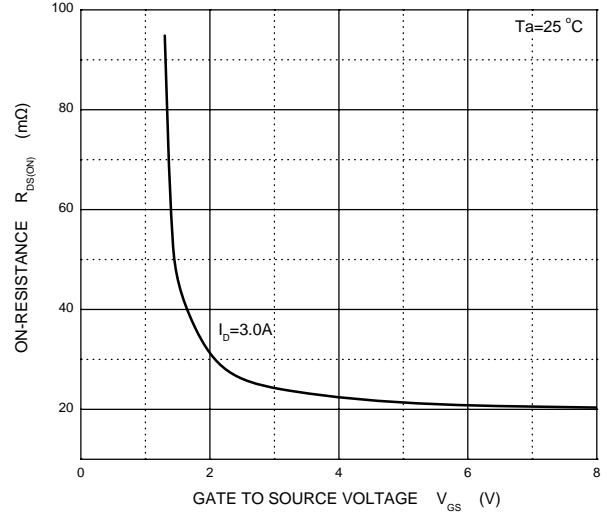
Transfer Characteristics



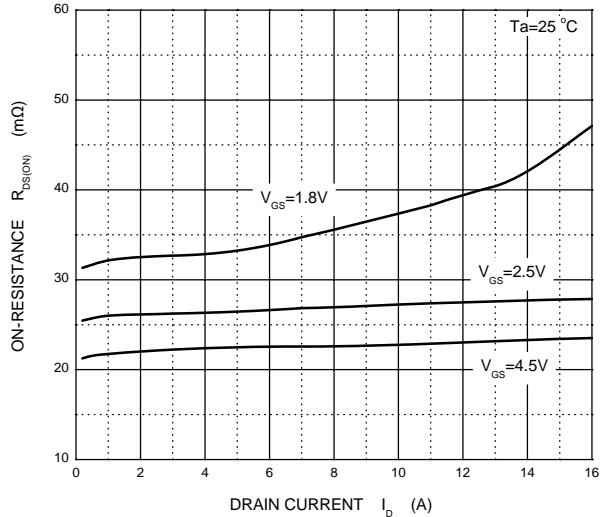
I_S — V_{SD}



$R_{DS(ON)}$ — V_{GS}



$R_{DS(ON)}$ — I_D

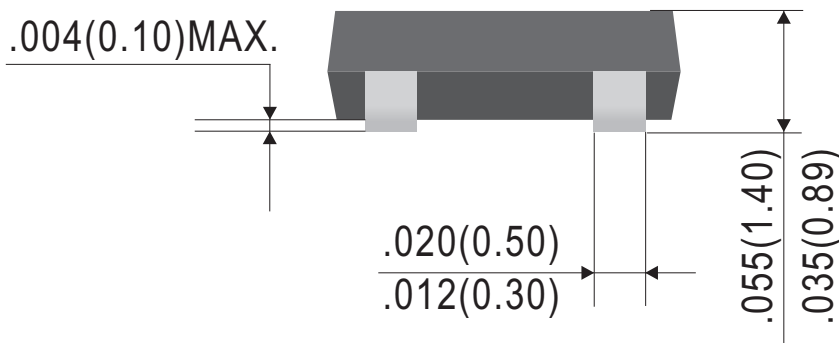
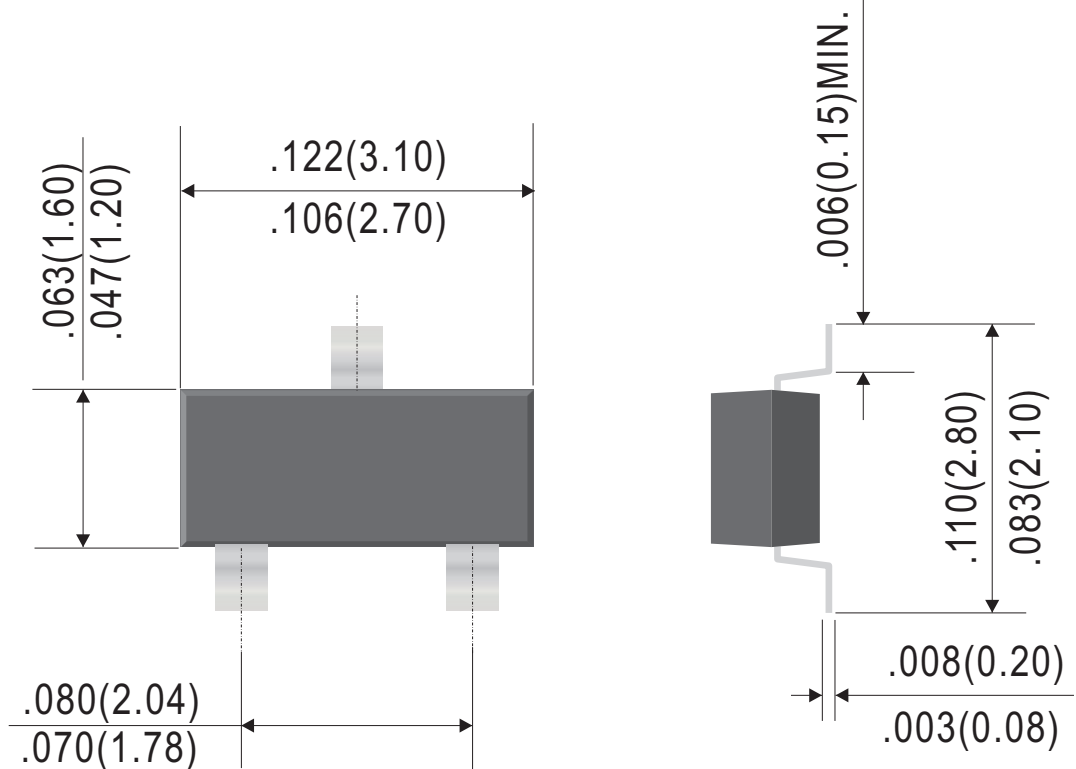




SOT-23 Plastic-Encapsulate MOSFETS

Outline Drawing

SOT-23



Dimensions in inches and (millimeters)

SOT-23 Plastic-Encapsulate MOSFETS**Ordering Information:**

Device PN	Packing
SE2312-T ⁽¹⁾ G ⁽²⁾ -WS	Tape&Reel: 3 Kpcs/Reel

Note: (1) Packing code, Tape & Reel

(2) RoHS product for packing code suffix "G" ; Halogen free product for packing code suffix "H"

*****Disclaimer*****

WILLAS reserves the right to make changes without notice to any product specification herein, to make corrections, modifications, enhancements or other changes. WILLAS or anyone on its behalf assumes no responsibility or liability for any errors or inaccuracies. Data sheet specifications and its information contained are intended to provide a product description only. "Typical" parameters which may be included on WILLAS data sheets and/ or specifications can and do vary in different applications and actual performance may vary over time. WILLAS does not assume any liability arising out of the application or use of any product or circuit.

WILLAS products are not designed, intended or authorized for use in medical, life-saving implant or other applications intended for life-sustaining or other related applications where a failure or malfunction of component or circuitry may directly or indirectly cause injury or threaten a life without expressed written approval of WILLAS. Customers using or selling WILLAS components for use in such applications do so at their own risk and shall agree to fully indemnify WILLAS Inc and its subsidiaries harmless against all claims, damages and expenditures.