

**N-Channel Plastic-Encapsulate MOSFETS****PRIMARY CHARACTERISTICS**

BV _{DSS}	R _{DS(on)} MAX	I _D
20V	65mΩ @4.5V	3A
	90mΩ @2.5V	2A

SOT-23 PACKAGE

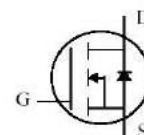
Marking : A2SHB or S2



or



- 1. GATE
- 2. SOURCE
- 3. DRAIN

**FEATURES**

- Super high dense cell trench design for low RDS(on).
- Rugged and reliable.
- Surface Mount package.

MECHANICAL DATA

- Case : Molded plastic,SOT-23
- Polarity : Shown above
- Terminals :Plated terminals, solderable per MIL-STD-750,Method 2026
- Epoxy : UL94-V0 rated flame retardant

Maximum ratings (Ta=25°C unless otherwise noted)

Symbol	Rating	Value	Unit
V _{DS}	Drain-Source Voltage	20	V
V _{GS}	Gate-Source Voltage	±12	V
I _D ¹	Drain Current-Continuousa @ TA = 25 °C -Pulse	3	A
I _{DM} ²		9	
I _S ¹	Continuous Source-Drain Current(Diode Conduction)	1	A
PD@TA=25°C ¹	Power Dissipation	1.25	W
PD@TA=75°C ¹		0.75	
R _{θJA} ¹	Thermal Resistance, Junction to Ambient	100	°C/W
T _J , T _{stg}	Operating Junction and Storage Temperature	-55 to +150	°C

Note 1. Surface Mounted on FR4 Board , t ≤ 10sec

2. Pulse width limited by maximum junction temperature.



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Electrical Characteristics (@TA = 25°C, unless otherwise noted.)

Symbol	Characteristic	Test Condition	Min.	Typ.	Max.	Unit
Static						
V _{(BR)DSS}	Drain-source breakdown voltage	V _{GS} = 0V, I _D = 250uA	20	—	—	V
I _{GSS}	Gate-body leakage	V _{DS} = 0V , V _{GS} = ±8V	—	—	±10	μA
I _{DSS}	Zero gate voltage drain current	V _{DS} = 20V , V _{GS} = 0V	—	—	1	μA
V _{GS(th)} ³	Gate-threshold voltage	V _{DS} = V _{GS} , I _D = 250uA	0.5	0.7	1	V
R _{DS(on)} ³	Drain-source on-resistance	V _{GS} = 4.5V, I _D = 2.8A	—	50	65	mΩ
		V _{GS} = 2.5V, I _D = 2.0A	—	65	90	
g _{fs} ³	Forward transconductance	V _{DS} = 5V, I _D = 4A	—	10.7	—	S
V _{SD} ³	Diode forward voltage	I _S = 1.7A, V _{GS} = 0V	—	—	1.2	V
Dynamic ⁴						
Q _g	Total gate charge	V _{DS} = 6V, V _{GS} = 4.5V, I _D = 2.8A	—	13	—	nC
Q _{gs}	Gate-source charge		—	4.1	—	
Q _{gd}	Gate-drain charge		—	2.9	—	
C _{iss}	Input capacitance	V _{DS} =6V, V _{GS} =0V, f=1MHz	—	457	—	pF
C _{oss}	Output capacitance		—	119	—	
C _{rss}	Reverse transfer capacitance		—	93	—	
Switching ⁴						
td(on)	Turn-on delay time	V _{DD} =6V	—	4	8	ns
tr	Rise time	R _L =6Ω, I _D =1A	—	14	26	
td(off)	Turn-off delay time	V _{GEN} =4.5V, R _g =6Ω	—	21	39	
tf	Fall time		—	7.2	—	

Notes : 3. Pulse Test Pulse width $\leq 300\mu s$, Duty Cycle $\leq 2\%$

4. Guaranteed by design, not subject to production testing



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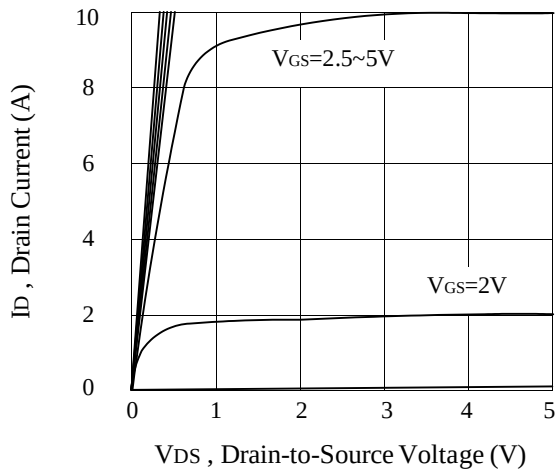


Figure 1. Output Characteristics

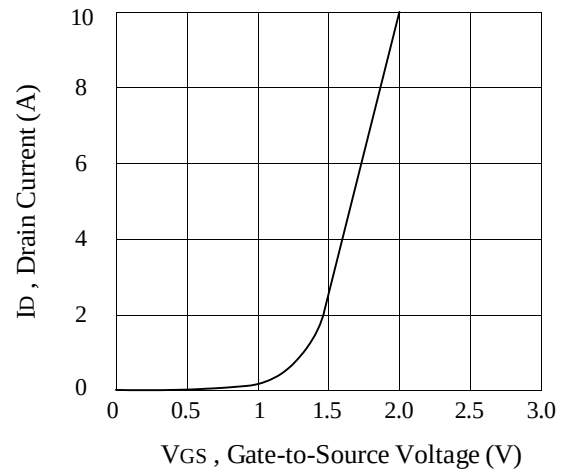


Figure 2. Transfer Characteristics

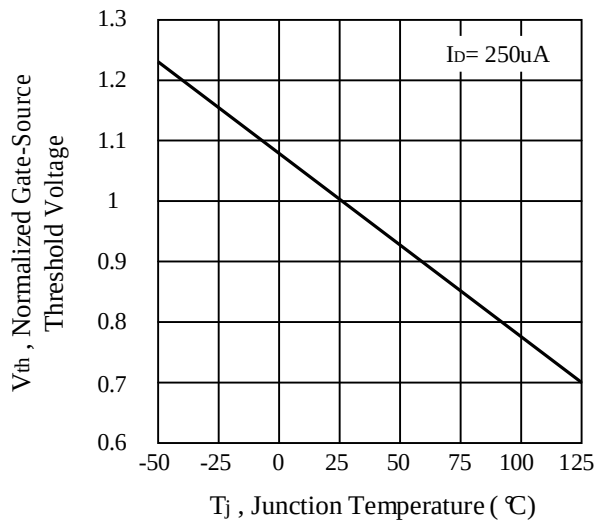


Figure 3. Gate Threshold Variation with Temperature

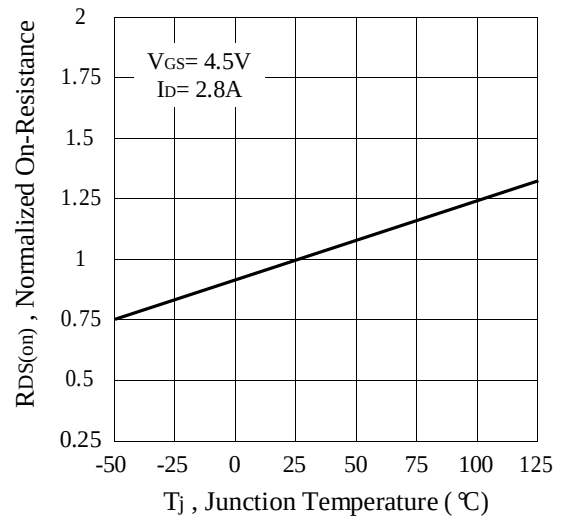
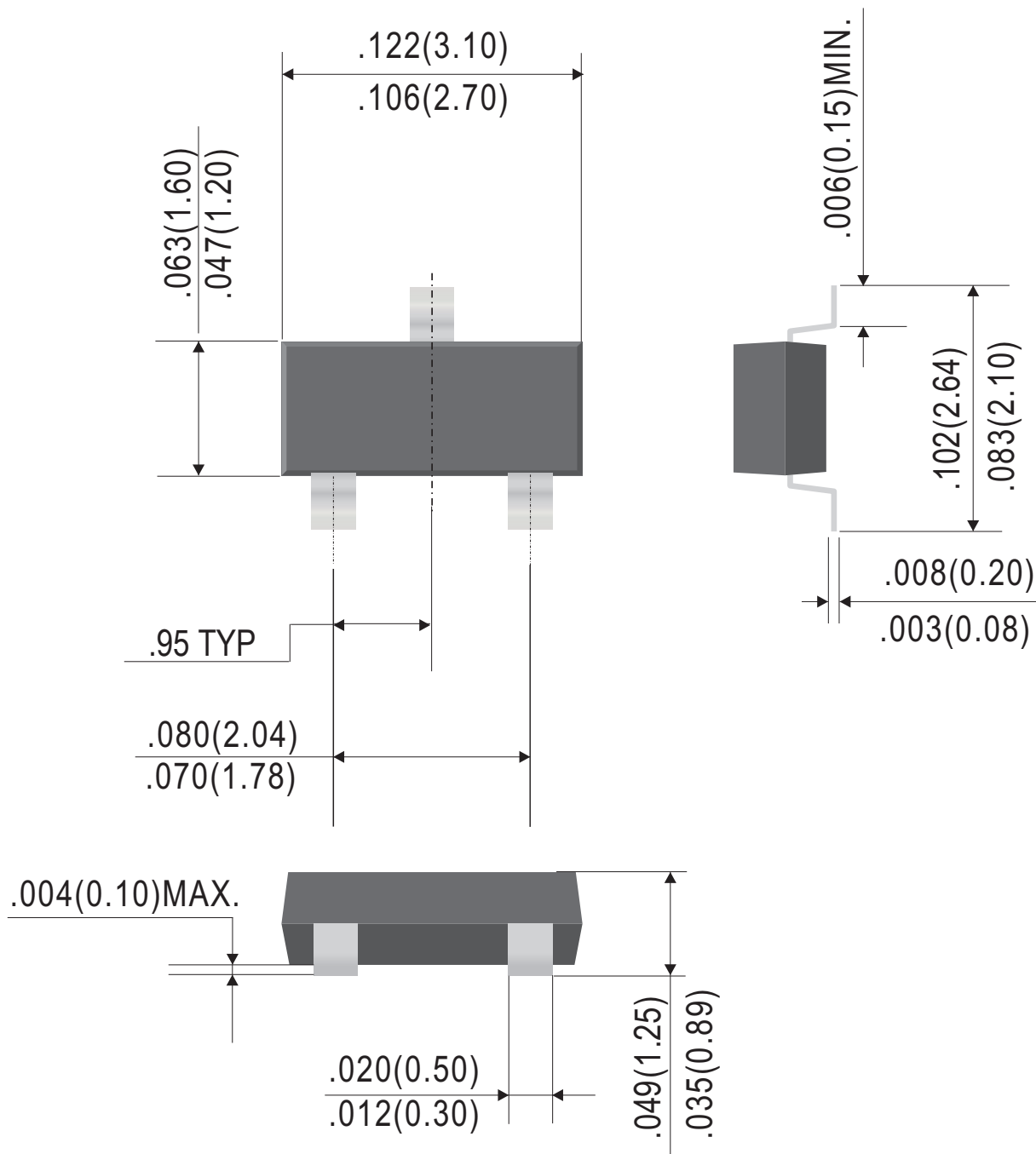


Figure 4. On-Resistance Variation with Temperature



Outline Drawing

SOT-23



Dimensions in inches and (millimeters)

Rev.E



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Ordering Information:

Device PN	Packing
SE2302GD -T ⁽¹⁾ H ⁽²⁾ -WS ⁽³⁾	Tape&Reel: 3 Kpcs/Reel

Note: (1) Packing code, Tape & Reel Packing

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

(3) WS : Willas brand abbreviation, Label Type does not display

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