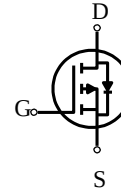


P-Channel Plastic-Encapsulate MOSFETS
PRIMARY CHARACTERISTICS

BV _{DSS}	R _{DS(on)} MAX	I _D
-20V	95mΩ @4.5V	-2.8A
	140mΩ @2.5V	-2A

SOT-23 PACKAGE

Marking : A1SHB



- 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	±8	V
I _D ¹	Drain Current-Continuous @ TA = 25 °C	-2.8	A
I _{DM} ²		-8	
I _S ¹	Continuous Source-Drain Current(Diode Conduction)	-0.75	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.

P-Channel Plastic-Encapsulate MOSFETS

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	—	—	-100	nA
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	-0.45	-0.65	-0.95	V
R _{DS(on)} ³	Drain-source on-resistance	V _{GS} = -4.5V, I _D = -2.8A	—	75	95	mΩ
		V _{GS} = -2.5V, I _D = -2.0A	—	90	140	
V _{SD} ³	Diode forward voltage	I _S = -0.75A, V _{GS} = 0V	—	—	-1.2	V
Dynamic ⁴						
Q _g	Total gate charge	V _{DS} = -6V, V _{GS} = -4.5V, I _D = -2.8A	—	6.72	—	nC
Q _{gs}	Gate-source charge		—	1.12	—	
Q _{gd}	Gate-drain charge		—	1.04	—	
C _{iss}	Input capacitance	V _{DS} = -6V, V _{GS} =0V, f=1MHz	—	664	—	pF
C _{oss}	Output capacitance		—	154	—	
C _{rss}	Reverse transfer capacitance		—	129	—	
Switching ⁴						
td(on)	Turn-on delay time	V _{DD} = -6V	—	8.6	—	ns
tr	Rise time	R _L =6Ω, I _D = -1A	—	3	—	
td(off)	Turn-off delay time	V _{GEN} = -4.5V, R _{GEN} =6Ω	—	39.2	—	
tf	Fall time		—	11.2	—	

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

4. Guaranteed by design, not subject to production testing

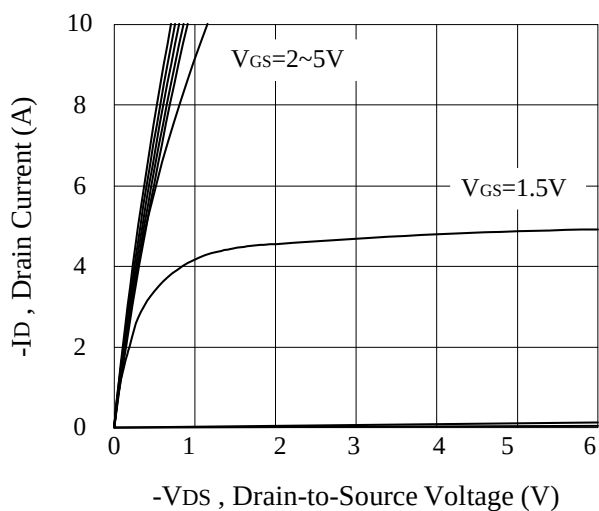
P-Channel Plastic-Encapsulate MOSFETS


Figure 1. Output Characteristics

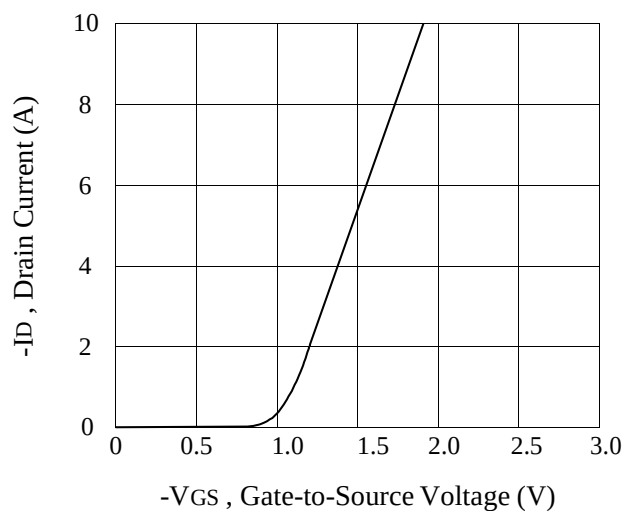


Figure 2. Transfer Characteristics

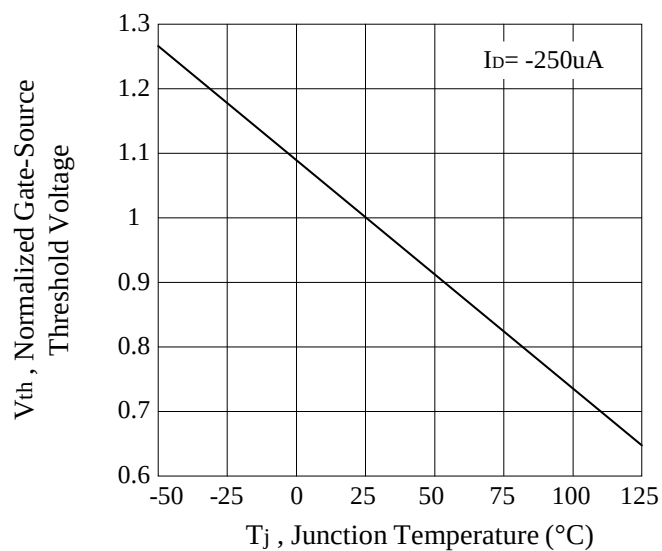


Figure 3. Gate Threshold Variation with Temperature

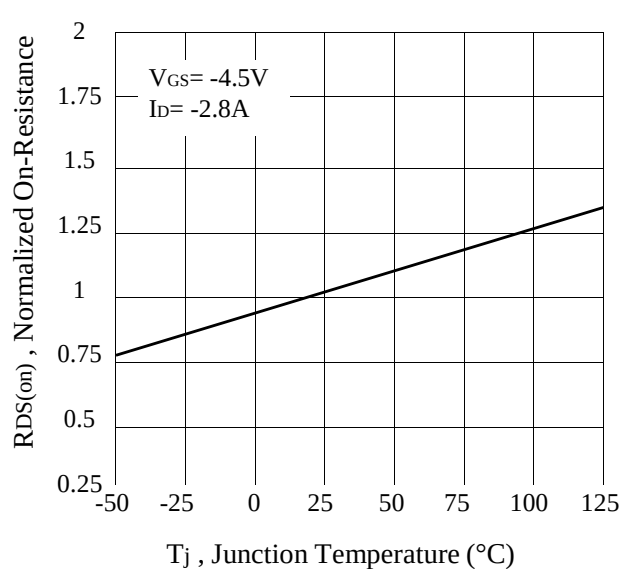
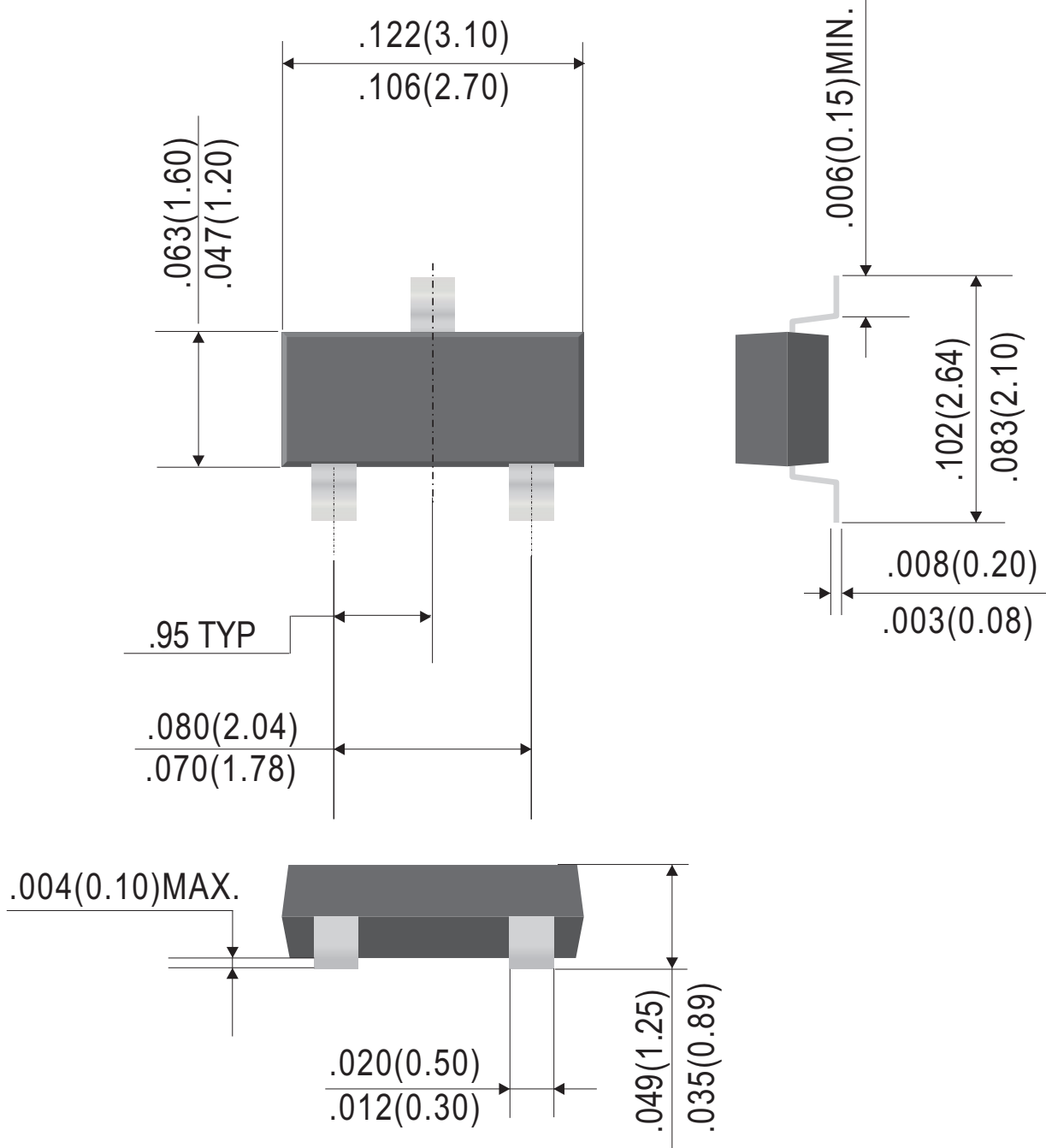


Figure 4. On-Resistance Variation with Temperature

Outline Drawing

SOT-23



Dimensions in inches and (millimeters)

Rev.E

Ordering Information:

Device PN	Packing
SE230MD5 -T ⁽¹⁾ G ⁽²⁾ -WS	Tape&Reel: 3 Kpcs/Reel

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

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

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