

PRIMARY CHARACTERISTICS

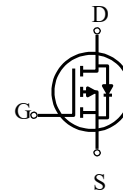
BV _{DSS}	R _{DS(on)} MAX	I _D
-20V	90mΩ@V _{GS} =-4.5V	-2.8A
	120mΩ@V _{GS} =-2.5V	

GENERAL DESCRIPTION

- load switch

SOT-23 PACKAGE

Marking : A15HB



1. GATE
2. SOURCE
3. DRAIN

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

- **Absolute Maximum Ratings** @T_A=25°C unless otherwise noted

Parameter		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DSS}	-20	V
Gate-Source Voltage		V_{GSS}	± 12	V
Drain Current (Continuous) *AC	$T_A=25^{\circ}\text{C}$	I_D	-2.8	A
	$T_A=70^{\circ}\text{C}$		-2	
Drain Current (Pulse) *B		I_{DM}	-10	A
Power Dissipation	$T_A=25^{\circ}\text{C}$	P_D	1.25	W
Operating Temperature/ Storage Temperature		T_J/T_{STG}	-55~150	$^{\circ}\text{C}$

- **Thermal Resistance Ratings**

Parameter		Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient	t ≤ 5s	R _{thJA}	80	100	°C/W



● **Electrical Characteristics** @T_A=25°C unless otherwise noted

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = -250μA	-20	--	--	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -20V, V _{GS} = 0V	--	--	-1	μA
Gate Threshold Voltage	V _{GS(TH)}	V _{GS} = V _{DS} , I _{DS} = -250 μ A	-0.4	-0.7	-1.2	V
Gate Leakage Current	I _{GSS}	V _{GS} = ±12V, V _{DS} =0V	--	--	±100	nA
Drain-Source On-state Resistance	R _{DS(on)}	V _{GS} = -4.5V, I _D = -2A	--	70	90	mΩ
	R _{DS(on)}	V _{GS} = -2.5V, I _D = -1A	--	90	120	mΩ
Forward Transconductance	g _{FS}	V _{DS} = -5V , I _D = -2A	--	7	--	S
Diode Forward Voltage	V _{SD}	I _{SD} = -1A , V _{GS} = 0V	--	--	-1.2	V
Diode Forward Current	I _S	T _C =25°C	--	--	-2.8	A
Switching						
Total Gate Charge	Q _g	V _{GS} = -4.5V, V _{DS} = -10V, I _D = -2.8A	--	3.8	--	nC
Gate-Source Charge	Q _{gs}		--	0.7	--	nC
Gate-Drain Charge	Q _{gd}		--	0.5	--	nC
Turn-on Delay Time	t _{d (on)}	V _{DD} = -10V, R _G = 3Ω I _D = -2.8A, V _{GS} = -4.5V	--	15	--	ns
Turn-on Rise Time	t _r		--	17	--	ns
Turn-off Delay Time	t _{d(off)}		--	24	--	ns
Turn-Off Fall Time	t _f		--	8	--	ns
Dynamic						
Input Capacitance	C _{iSS}	V _{GS} =0V,V _{DS} = -10V,f= 1.0MHz	--	400	--	pF
Output Capacitance	C _{oSS}		--	90	--	pF
Reverse Transfer Capacitance	C _{rSS}		--	60	--	pF

A: The value of R_{θJA} is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with T_A=25°C. The value in any given application depends on the user's specific board design.

B: Repetitive rating, pulse width limited by junction temperature.

C: The current rating is based on the t_s ≤ 10s junction to ambient thermal resistance rating.



● Typical Performance Characteristics (T_J = 25 °C, unless otherwise noted)

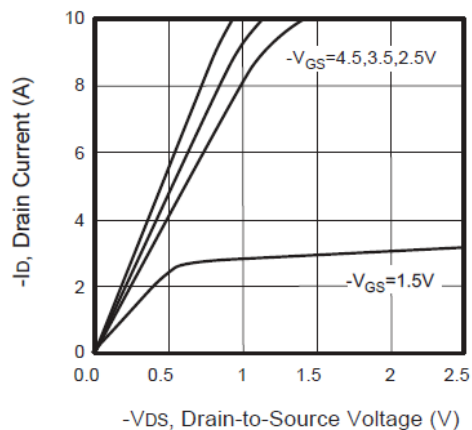


Figure 1. Output Characteristics

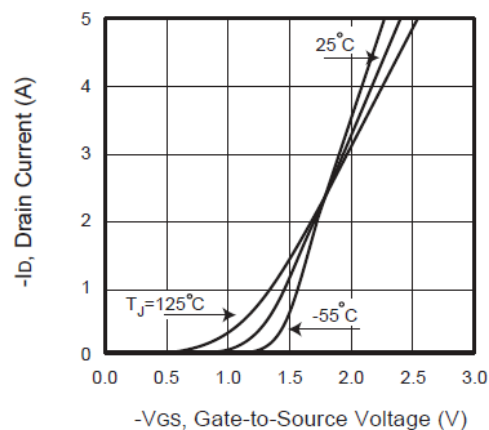


Figure 2. Transfer Characteristics

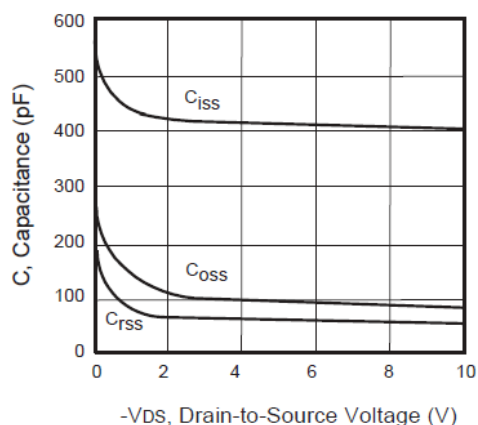


Figure 3. Capacitance

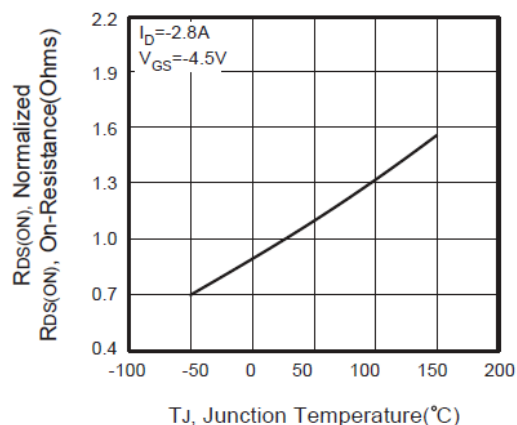


Figure 4. On-Resistance Variation with Temperature

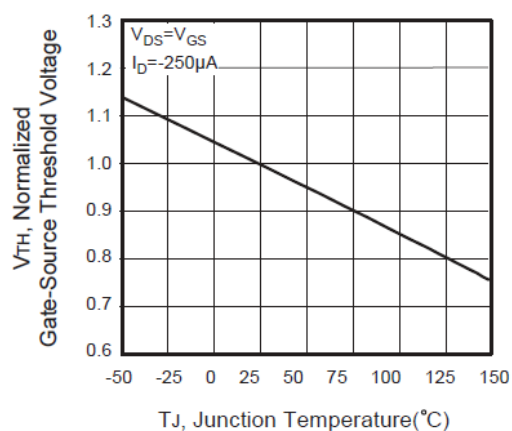


Figure 5. Gate Threshold Variation with Temperature

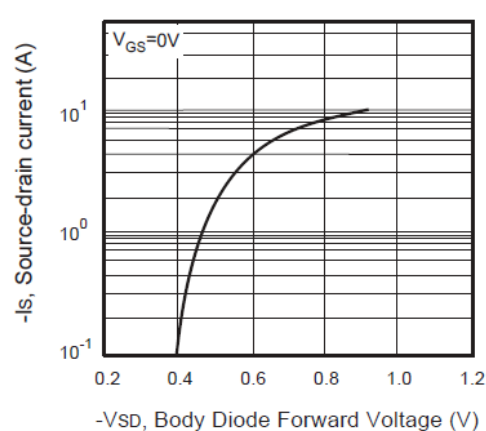


Figure 6. Body Diode Forward Voltage Variation with Source Current

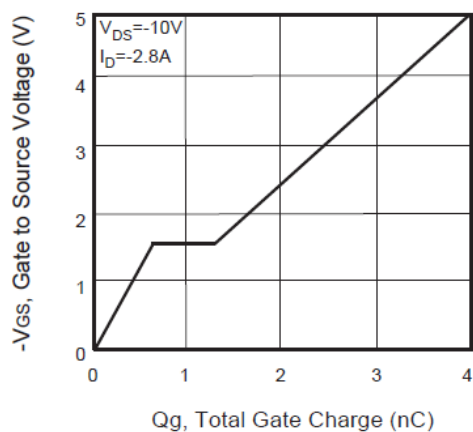


Figure 7. Gate Charge

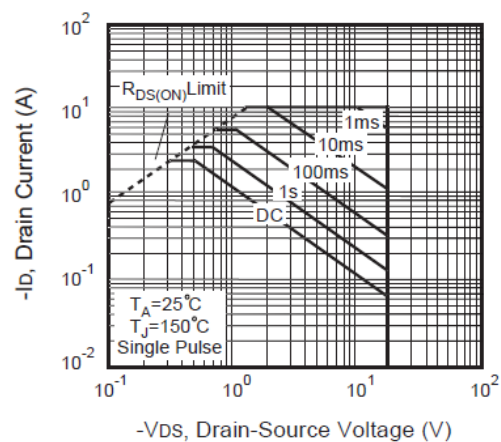


Figure 8. Maximum Safe Operating Area

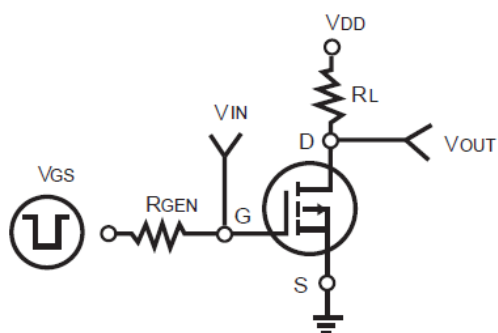


Figure 9. Switching Test Circuit

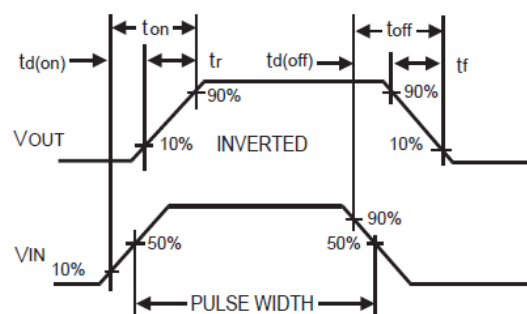


Figure 10. Switching Waveforms

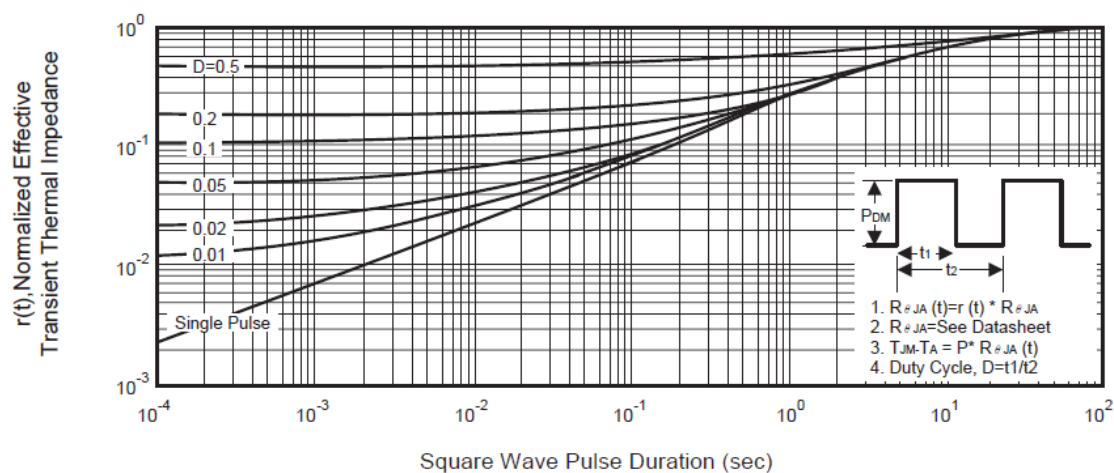
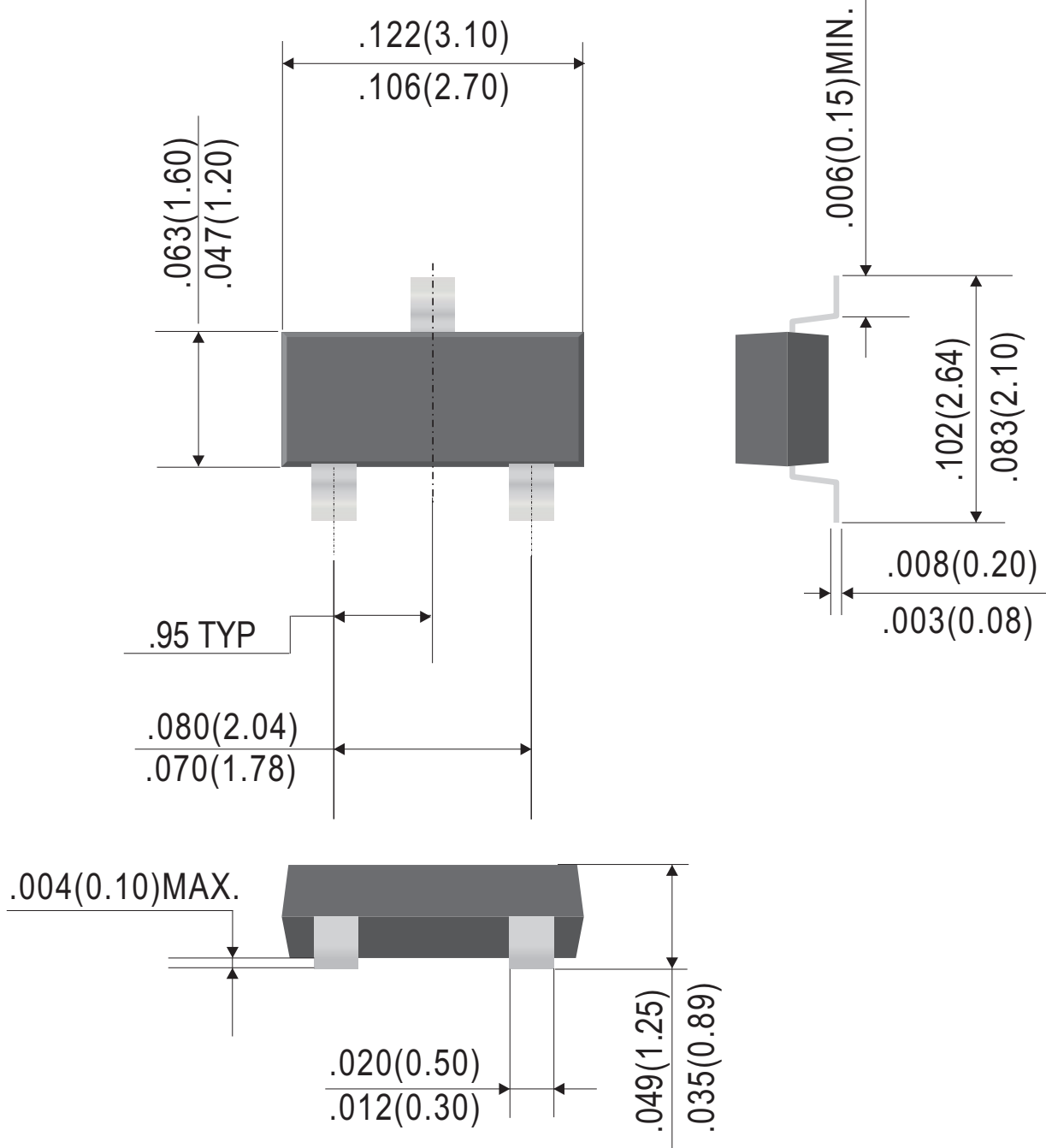


Figure 11. Normalized Thermal Transient Impedance Curve



Outline Drawing

SOT-23



Dimensions in inches and (millimeters)

Rev.E

Ordering Information:

Device PN	Packing
SE2301LT -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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