

Features

- $V_{DS}=60V$, $I_D=3A$
- $R_{DS(ON)} < 100m\Omega$ @ $V_{GS} = 10V$
 $R_{DS(ON)} < 110m\Omega$ @ $V_{GS} = 4.5V$
- High Power and Current Handling Capability
- Lead Free Product is Acquired
- Surface Mount Package

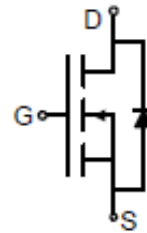
Application

- Battery Protection
- Load Switch
- Power Management

Package



SOT-23



Absolute Maximum Ratings (T_C=25°C unless otherwise specified)

Symbol	Parameter		Max.	Units
V _{DSS}	Drain-Source Voltage		60	V
V _{GSS}	Gate-Source Voltage		±20	V
I _D	Continuous Drain Current	T _C = 25°C	3	A
		T _C = 100°C	2	
I _{DM}	Pulsed Drain Current ^{note1}		10	A
P _D	Power Dissipation	T _A = 25°C	0.35	W
R _{θJA}	Thermal Resistance, Junction to Ambient		357	°C/W
T _J , T _{STG}	Operating and Storage Temperature Range		-55 to +150	°C


Electrical Characteristics ($T_C=25^{\circ}\text{C}$ unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D = 250μA	60	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =48V, V _{GS} = 0V,	-	-	1	μA
I _{GSS}	Gate to Body Leakage Current	V _{DS} =0V, V _{GS} = ±20V	-	-	±100	nA
On Characteristics						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = 250μA	1.0	-	2.5	V
R _{DS(on)}	Static Drain-Source on-Resistance note2	V _{GS} =10V, I _D =2A	-	-	100	mΩ
		V _{GS} =4.5V, I _D =1A	-	-	110	
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} = 30V, V _{GS} = 0V, f = 1.0MHz	-	250	-	pF
C _{oss}	Output Capacitance		-	26	-	pF
C _{rss}	Reverse Transfer Capacitance		-	20	-	pF
Q _g	Total Gate Charge	V _{DS} = 30V, I _D = 3A, V _{GS} = 4.5V	-	7	-	nC
Q _{gs}	Gate-Source Charge		-	1.2	-	nC
Q _{gd}	Gate-Drain(“Miller”) Charge		-	1.5	-	nC
Switching Characteristics						
t _{d(on)}	Turn-on Delay Time	V _{DD} = 30V, I _D =1.5A, R _{GEN} =1Ω, V _{GS} =10V,	-	6.5	-	ns
t _r	Turn-on Rise Time		-	15.2	-	ns
t _{d(off)}	Turn-off Delay Time		-	15.2	-	ns
t _f	Turn-off Fall Time		-	10.3	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I _S	Maximum Continuous Drain to Source Diode Forward Current		-	-	3	A
I _{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	10	A
V _{SD}	Drain to Source Diode Forward Voltage	V _{GS} =0V, I _S =1A	-	-	1.2	V

Notes: 1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature

2. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 0.5\%$

Typical Performance Characteristics

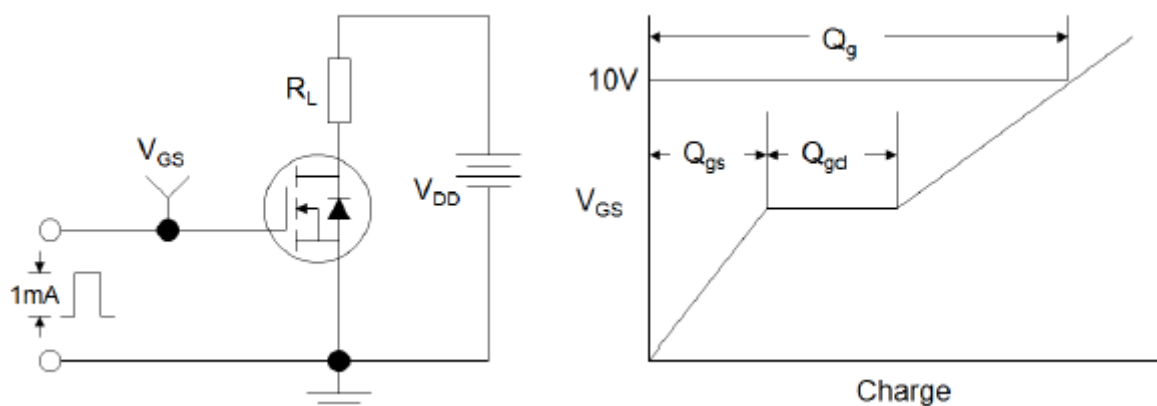


Figure1:Gate Charge Test Circuit & Waveform

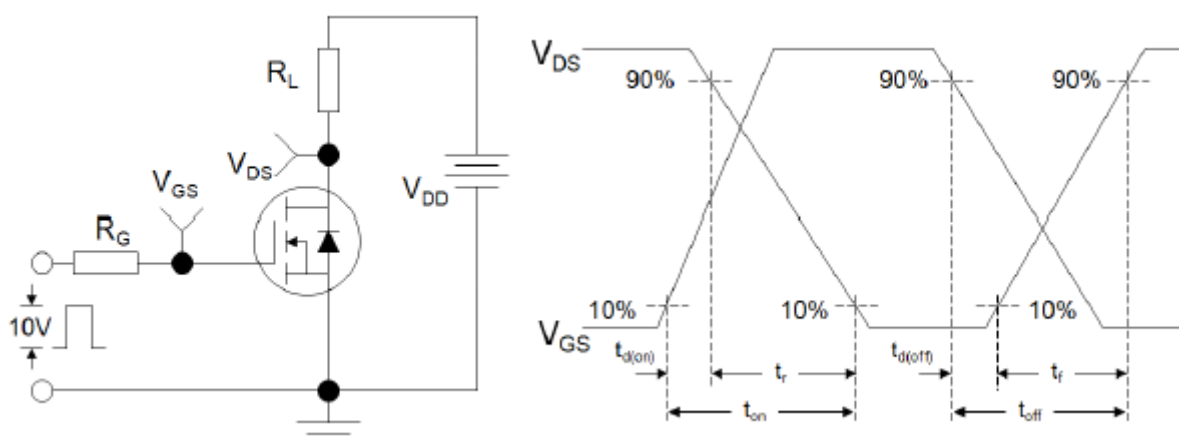


Figure 2: Resistive Switching Test Circuit & Waveforms

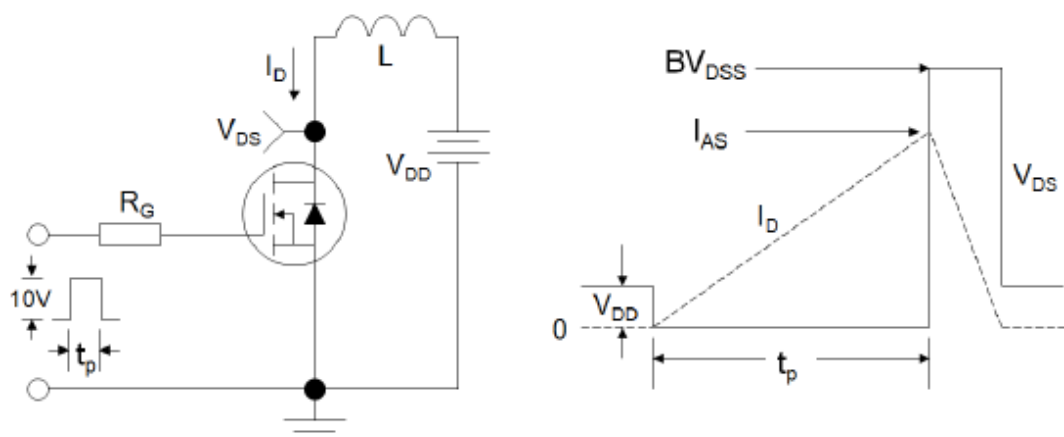


Figure 3:Unclamped Inductive Switching Test Circuit & Waveforms

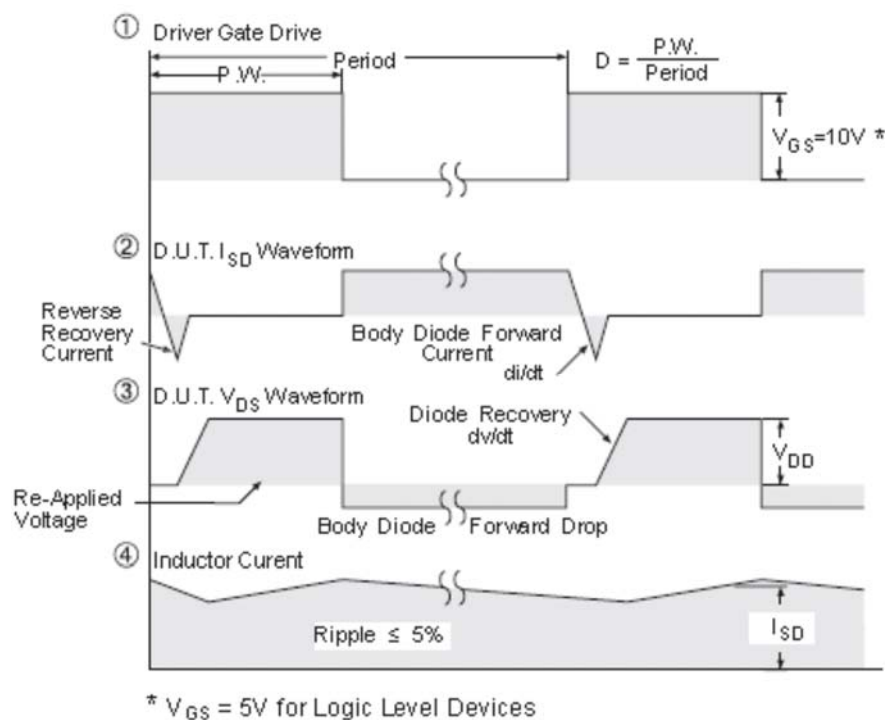
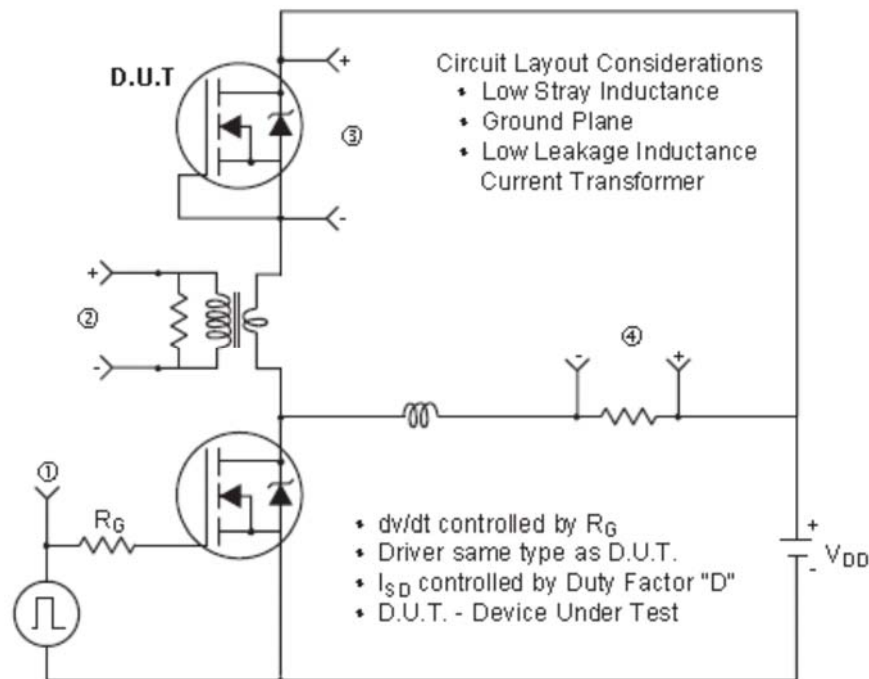
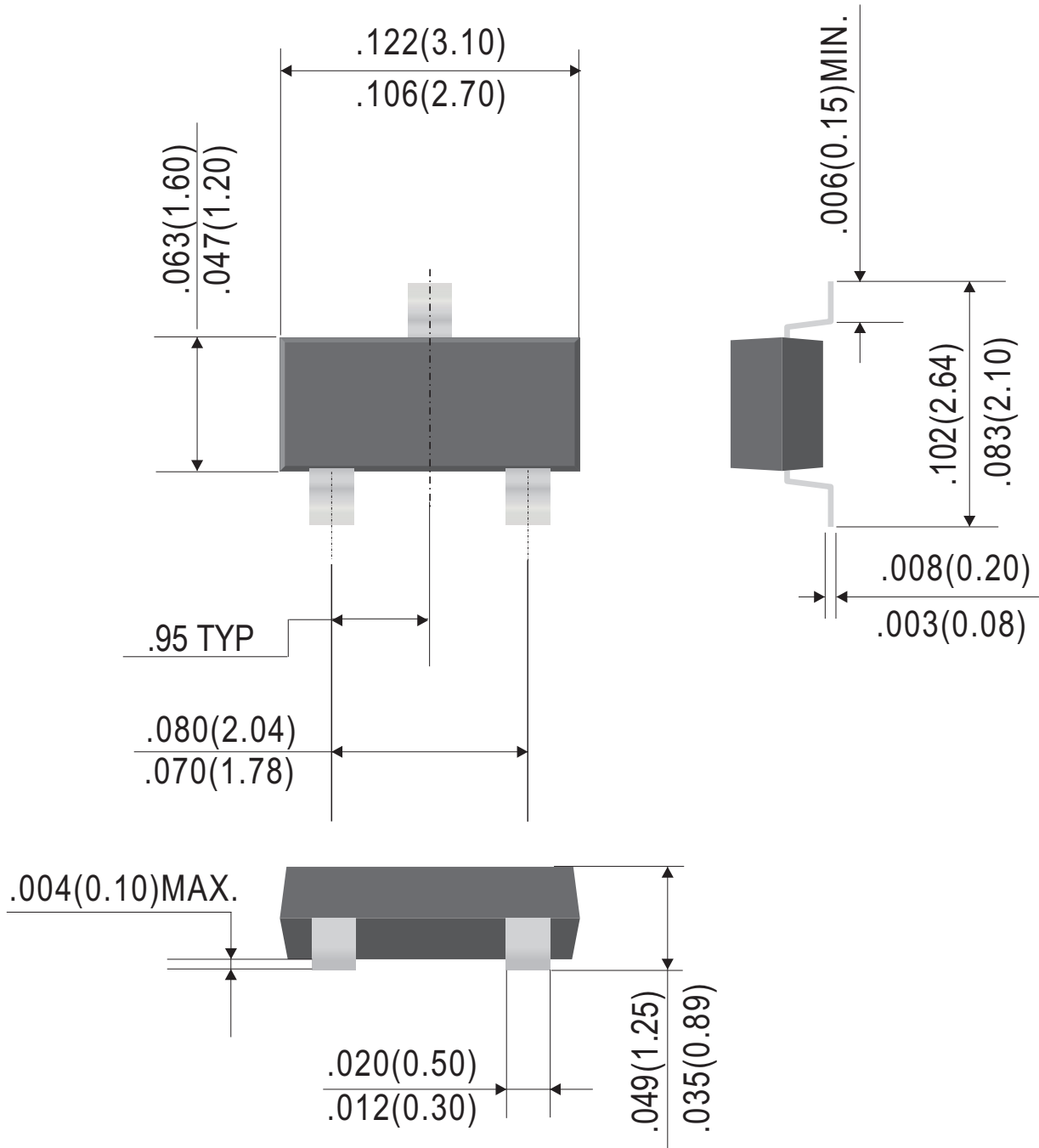


Figure 4: Peak Diode Recovery dv/dt Test Circuit & Waveforms (For N-channel)



Outline Drawing

SOT-23



Dimensions in inches and (millimeters)

Rev.E



Ordering Information:

Device PN	Packing
SE2310JM -T ⁽¹⁾ H ⁽²⁾ -WS	Tape&Reel: 3 Kpcs/Reel

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

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

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