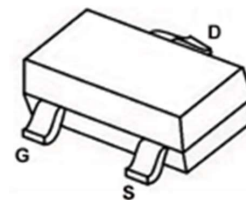


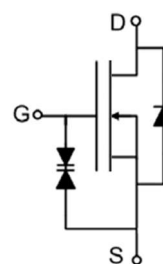
Features

- 20V, 0.75A
 $R_{DS(ON)} < 380m\Omega @ V_{GS} = 4.5V$
 $R_{DS(ON)} < 450m\Omega @ V_{GS} = 2.5V$
- Advanced Trench Technology
- Excellent $R_{DS(ON)}$ and Low Gate Charge
- Lead free product is acquired
- ESD Protected: 2KV


SOT-323

Application

- Load Switch
- PWM Application
- Power management


Schematic Diagram

Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter		Max.	Units
V_{DSS}	Drain-Source Voltage		20	V
V_{GSS}	Gate-Source Voltage		± 10	V
I_D	Continuous Drain Current	$T_A = 25^\circ\text{C}$	0.75	A
		$T_A = 100^\circ\text{C}$	0.5	A
I_{DM}	Pulsed Drain Current ^{note1}		3	A
P_D	Power Dissipation	$T_A = 25^\circ\text{C}$	0.2	W
$R_{\theta JA}$	Thermal Resistance, Junction to Case		625	$^\circ\text{C/W}$
T_J, T_{STG}	Operating and Storage Temperature Range		-55 to +150	$^\circ\text{C}$

Electrical Characteristics (T_J=25°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	20	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =20V, V _{GS} =0V,	-	-	1	μA
I _{GSS}	Gate to Body Leakage Current	V _{DS} =0V, V _{GS} = ±10V	-	-	±10	uA
On Characteristics						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	0.3	0.65	1	V
R _{DS(on)}	Static Drain-Source on-Resistance note2	V _{GS} =4.5V, I _D =0.5A	-	250	380	mΩ
		V _{GS} =2.5V, I _D =0.3A	-	350	450	
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =10V, V _{GS} =0V, f=1.0MHz	-	79	-	pF
C _{oss}	Output Capacitance		-	13	-	pF
C _{rss}	Reverse Transfer Capacitance		-	9	-	pF
Q _g	Total Gate Charge	V _{DS} =10V, I _D =0.3A, V _{GS} =4.5V	-	5	-	nC
Q _{gs}	Gate-Source Charge		-	0.8	-	nC
Q _{gd}	Gate-Drain(“Miller”) Charge		-	1.2	-	nC
Switching Characteristics						
t _{d(on)}	Turn-on Delay Time	V _{DS} =10V, I _D =0.5A, R _{GEN} =3Ω, V _{GS} =4.5V	-	6.7	-	ns
t _r	Turn-on Rise Time		-	4.8	-	ns
t _{d(off)}	Turn-off Delay Time		-	17.3	-	ns
t _f	Turn-off Fall Time		-	7.4	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I _S	Maximum Continuous Drain to Source Diode Forward Current		-	-	0.75	A
I _{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	3	A
V _{SD}	Drain to Source Diode Forward Voltage	V _{GS} =0V, I _S =0.75A	-	-	1.2	V

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

2. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%

Typical Performance Characteristics

Figure1: Output Characteristics

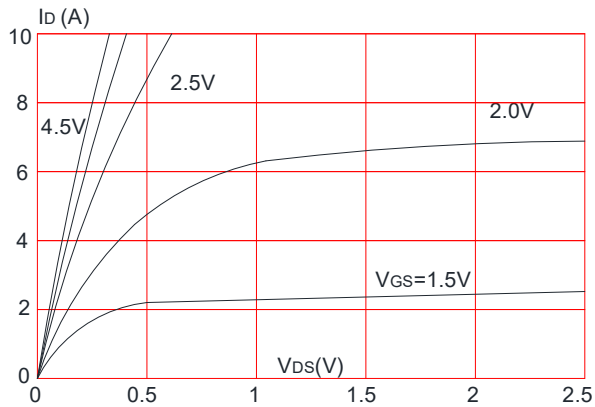


Figure 2: Typical Transfer Characteristics

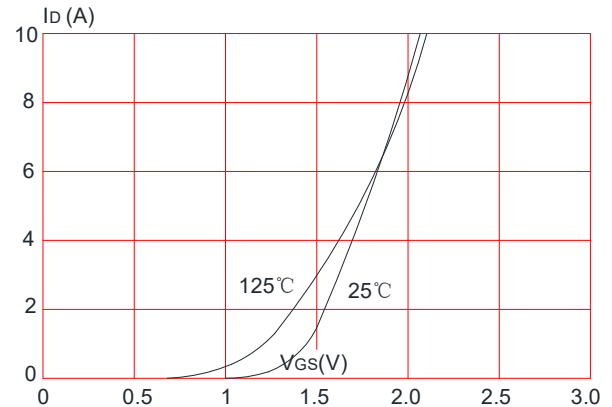


Figure 3: On-resistance vs. Drain Current

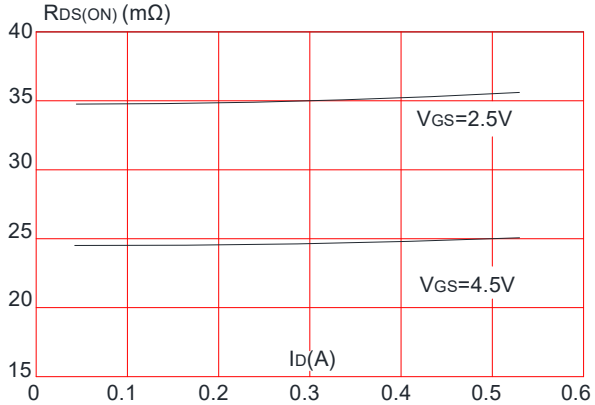


Figure 4: Body Diode Characteristics

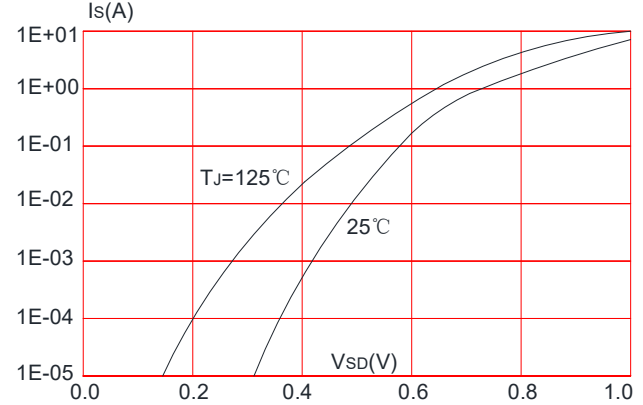


Figure 5: Gate Charge Characteristics

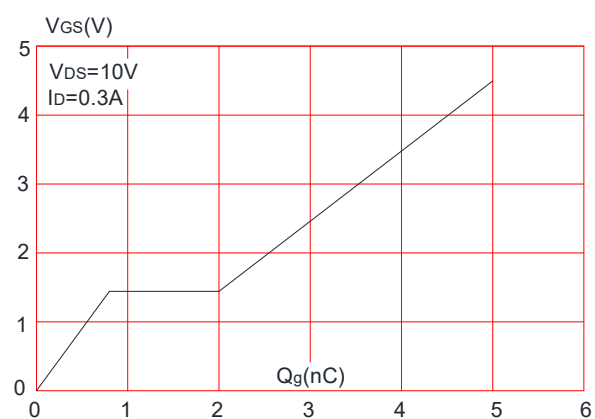


Figure 6: Capacitance Characteristics

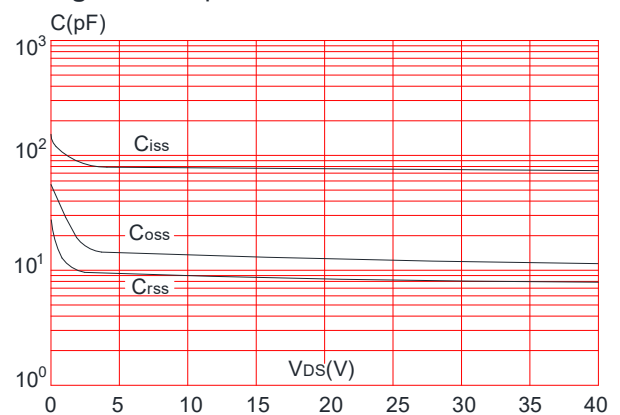


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

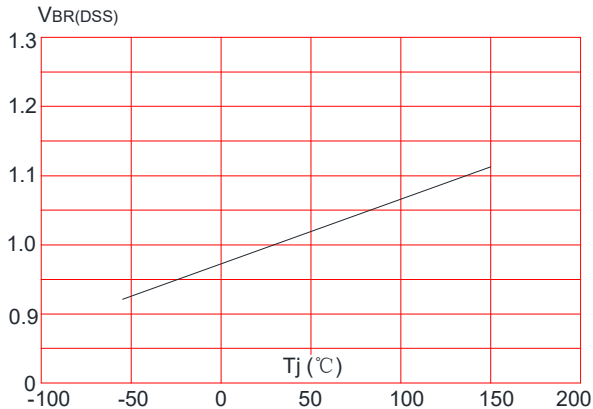


Figure 8: Normalized on Resistance vs. Junction Temperature

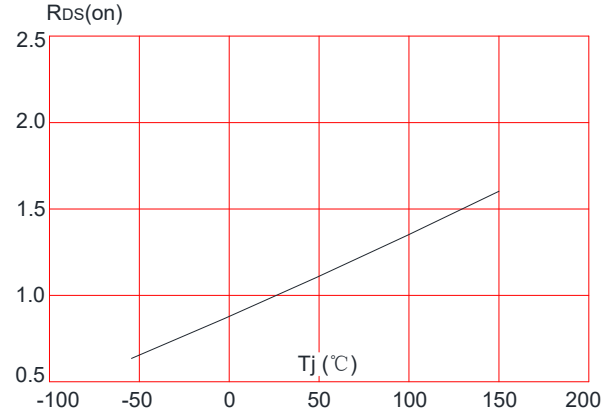


Figure 9: Maximum Safe Operating Area

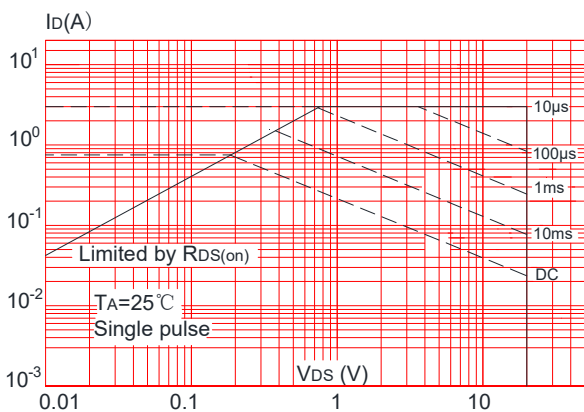


Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

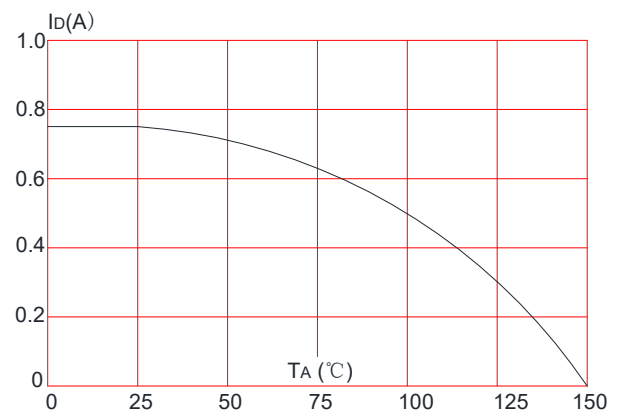
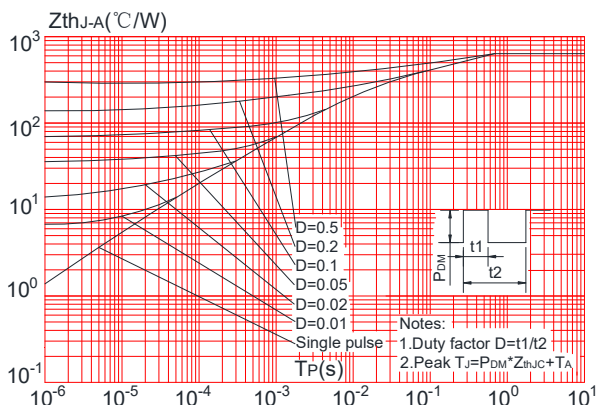


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambient



Test Circuit

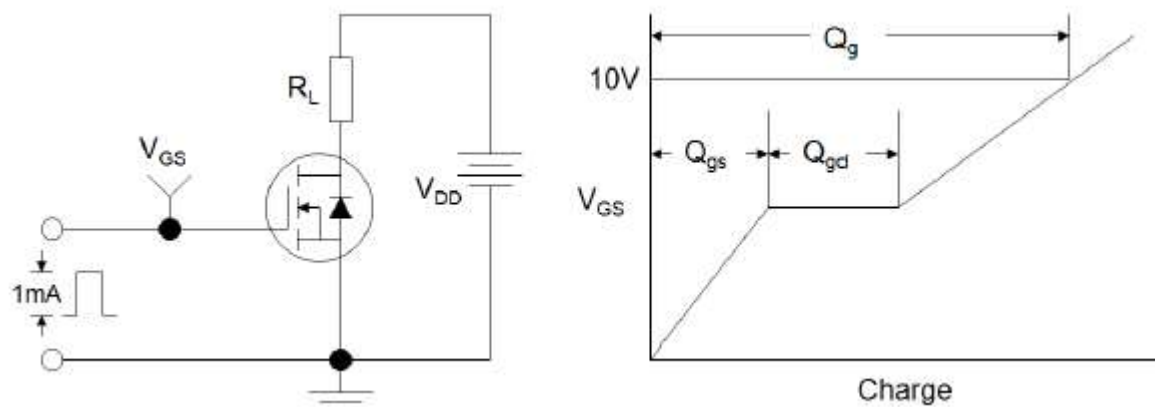


Figure1:Gate Charge Test Circuit & Waveform

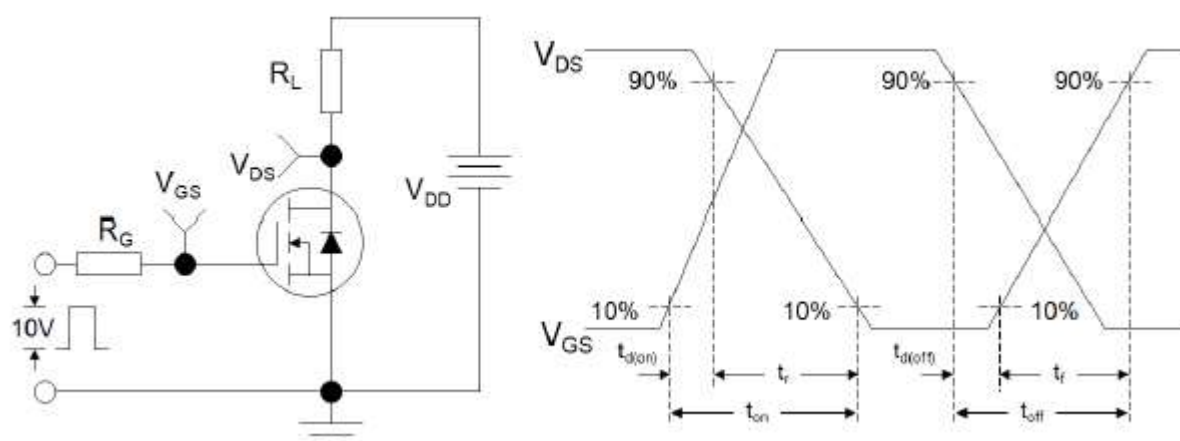


Figure 2: Resistive Switching Test Circuit & Waveforms

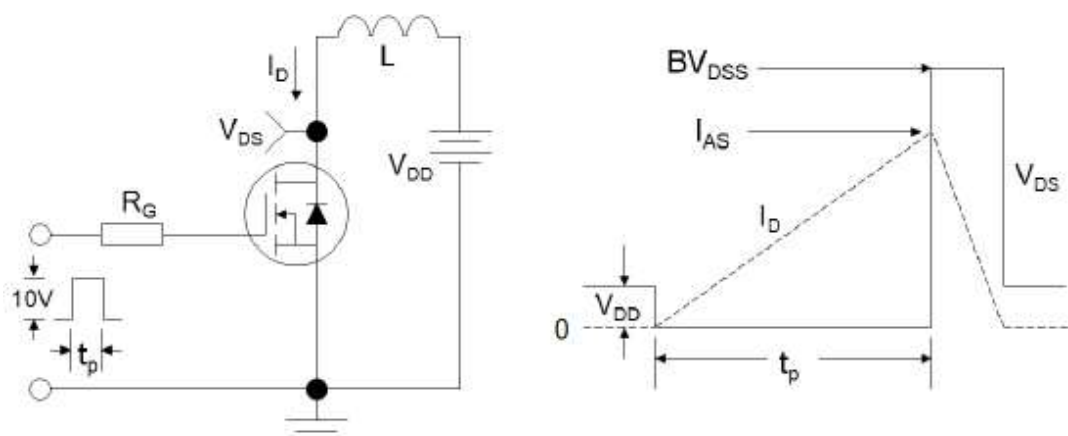
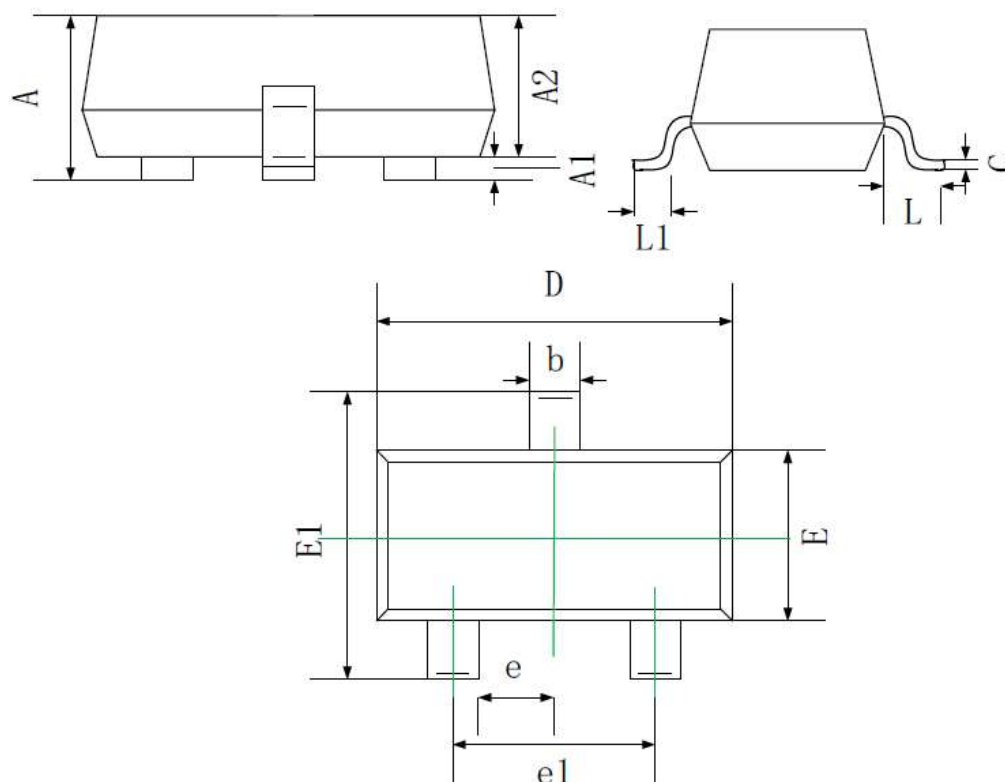


Figure 3:Unclamped Inductive Switching Test Circuit & Waveforms

Package Mechanical Data-SOT-323



Symbol	Dimensions In Millimeters	
	Min.	Max.
A	0.90	1.10
A1	0.00	0.10
A2	0.90	1.00
b	0.30	0.50
C	0.10	0.15
D	2.00	2.20
E	1.15	1.35
E1	2.15	2.40
e	0.65 TYP.	
e1	1.20	1.40
L	0.525 REF.	
L1	0.26	0.46