Features

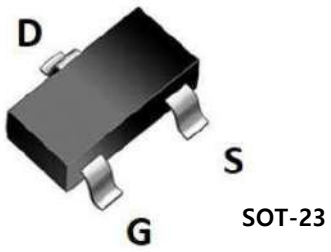
- Very Low On-resistance RDS(ON)
- LowCrss
- Fast switching
- Improved dv/dt capability

Application

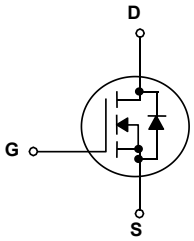
- PWM Application Load
- SwitchPower
- Management

Product Summary

V_{DS}	30	V
$R_{DS(on),Typ}$@ V_{GS}=4.5 V	21	mΩ
I_D	5.6	A



SOT-23



Absolute Maximum Ratings

T_C = 25°C unless otherwise noted

Symbol	Parameter	ASDM3400AZA	Units
V_{DSS}	Drain-Source Voltage	30	V
I_D	Drain Current - Continuous (T_C = 25℃)	5.6	A
	- Continuous (T_C = 100℃)	3.6	A
I_{DM}	Drain Current - Pulsed (Note 1)	23	A
V_{GSS}	Gate-Source Voltage	±20	V
P_D	Power Dissipation (T_C = 25℃)	1.4	W
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	70	℃/W
T_J, T_{STG}	Operating and Storage Temperature Range	-55 to +150	℃
T_L	Maximum lead temperature for soldering purposes, 1/8" from case for 5 seconds	300	℃

Electrical Characteristics

T_C= 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
Off Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS} = 0 V, I_D = 250 uA	30	--	--	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} =30 V, V_{GS} = 0 V	--	--	1	uA
		V_{DS} = 30V, T_C = 55℃	--	--	5	uA
I_{GSSF}	Gate-Body Leakage Current, Forward	V_{GS} = 12V, V_{DS} = 0 V	--	--	100	nA
I_{GSSR}	Gate-Body Leakage Current, Reverse	V_{GS} = -12 V, V_{DS} = 0 V	--	--	-100	nA
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = 250 uA	0.6	-	1.5	V
$R_{DS(on)}$	Static Drain-Source On-Resistance	V_{GS} = 10 V, I_D =5.6A	--	19	24	mΩ
		V_{GS} = 4.5 V, I_D =5.6A	-	21	27	
		V_{GS} = 2.5 V, I_D =3.0A	-	27	35	
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS} = 15V, V_{GS} = 0 V, f = 1.0 MHz	--	675	-	pF
C_{oss}	Output Capacitance		--	50	-	pF
C_{rss}	Reverse Transfer Capacitance		--	44	-	pF
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time	V_{GS}=10V, V_{DS}=15V, R_G = 3 Ω ,R_L = 2.6 Ω	--	13	--	ns
t_r	Turn-On Rise Time		--	52	--	ns
$t_{d(off)}$	Turn-Off Delay Time		--	25	--	ns
t_f	Turn-Off Fall Time		--	10	--	ns
Q_g	Total Gate Charge	V_{DS} = 15 V, I_D =5.6A, V_{GS} = 4.5V	--	8.6	--	nC
Q_{gs}	Gate-Source Charge		--	1.1	--	nC
Q_{gd}	Gate-Drain Charge		--	2.8	--	nC
Drain-Source Diode Characteristics and Maximum Ratings						
I_S	Maximum Continuous Drain-Source Diode Forward Current		--	--	5.6	A
I_{SM}	Maximum Pulsed Drain-Source Diode Forward Current		--	--	23	A
V_{SD}	Drain to Source Diode Forward Voltage,V_{GS} = 0V, I_{SD} =5.6A,T_J = 25℃		--	0.85	1.2	V

Notes:
1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. Device mounted on FR-4 PCB, 1inch x 0.85inch x 0.062 inch
3. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%

N- Channel Typical Characteristics

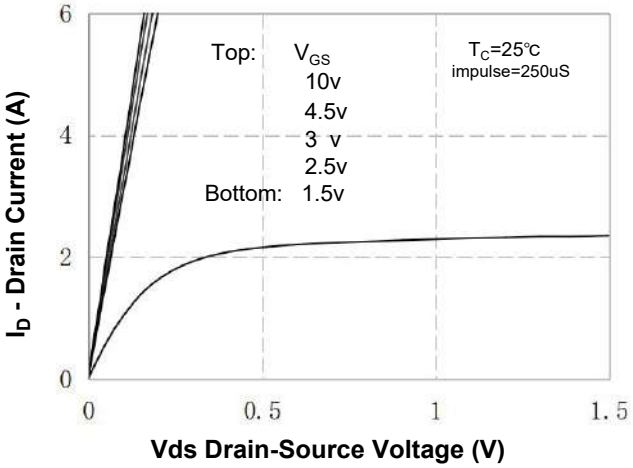


Figure 1. On-Region Characteristics

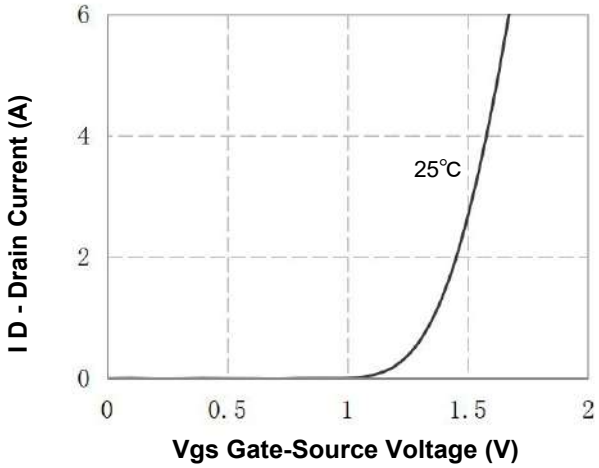


Figure 2. Transfer Characteristics

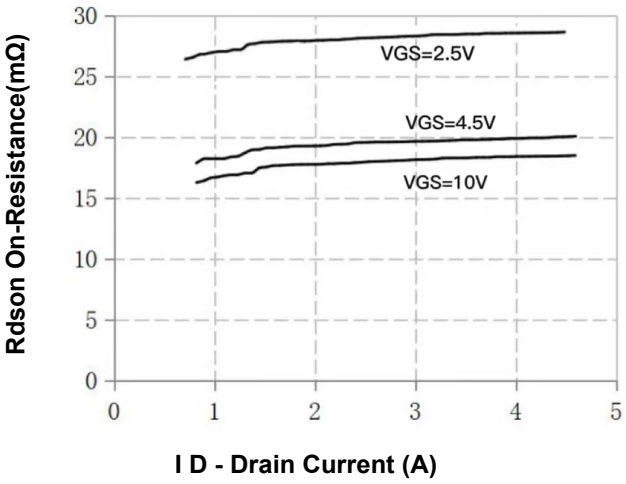


Figure 3. On-Resistance Variation vs Drain Current and Gate Voltage

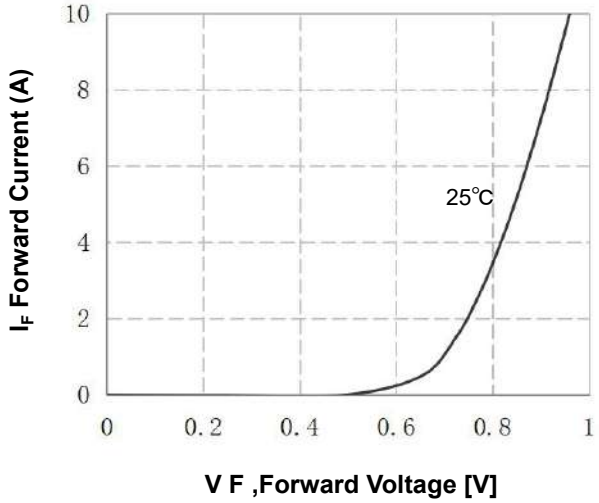


Figure 4. Body Diode Forward Voltage Variation with Source Current and Temperature

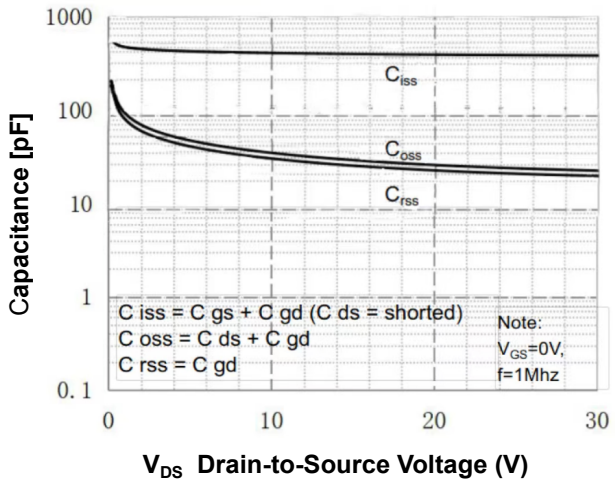


Figure 5. Capacitance Characteristics

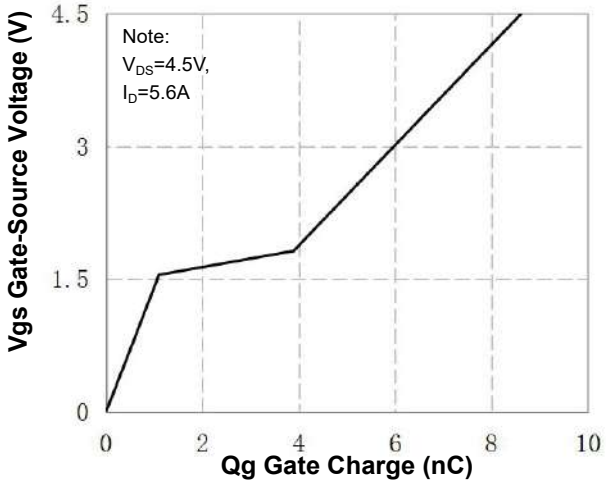


Figure 6. Gate Charge Characteristics

N- Channel Typical Characteristics (Continued)

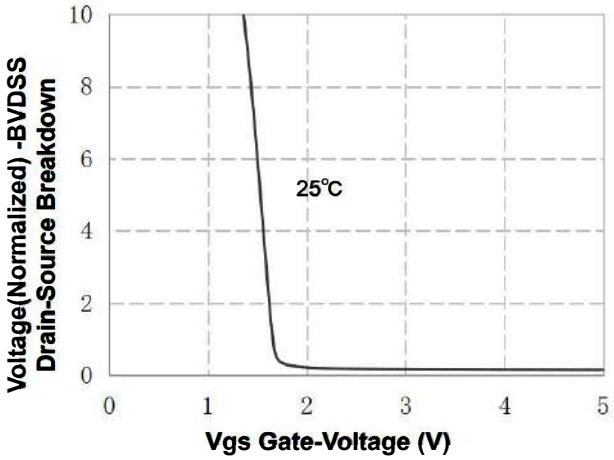


Figure 7. Breakdown Voltage Variation vs Gate-Voltage

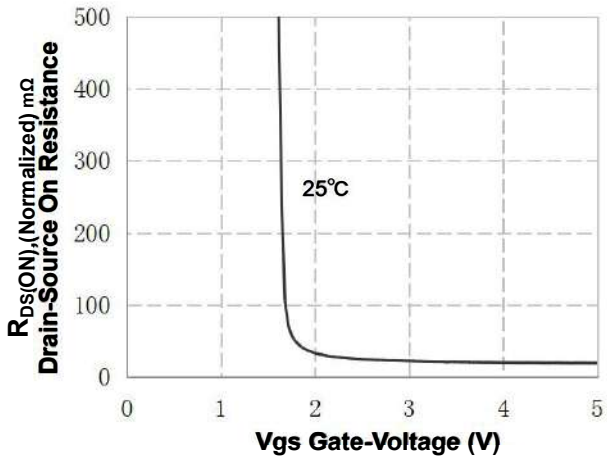


Figure 8. On-Resistance Variation vs Gate Voltage

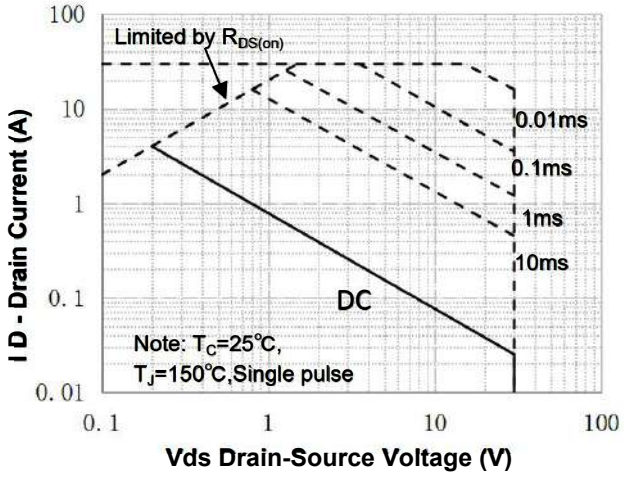


Figure 9. Maximum Safe Operating Area

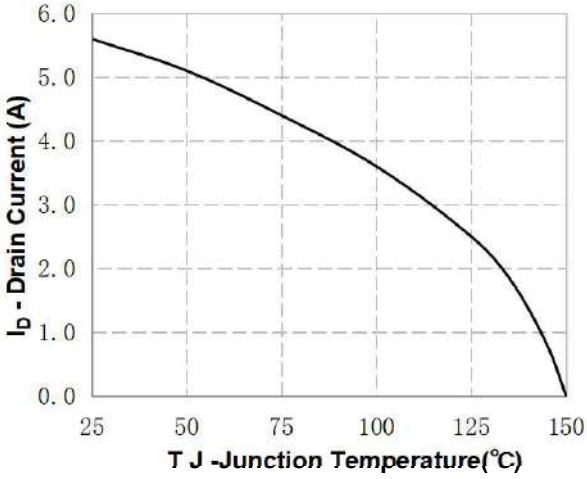


Figure 10. Maximum PContinuous Drain Currentvs Case Temperature

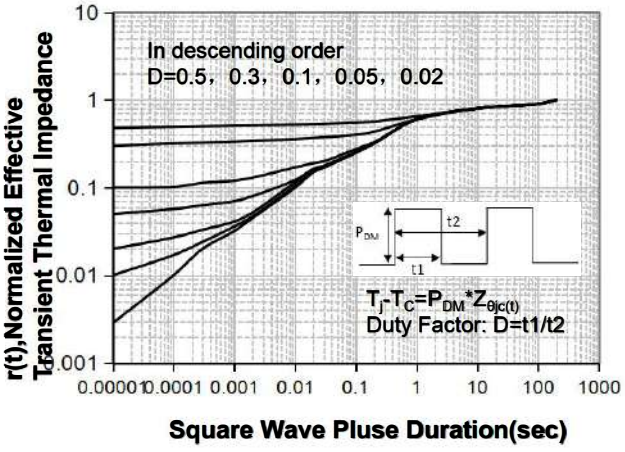
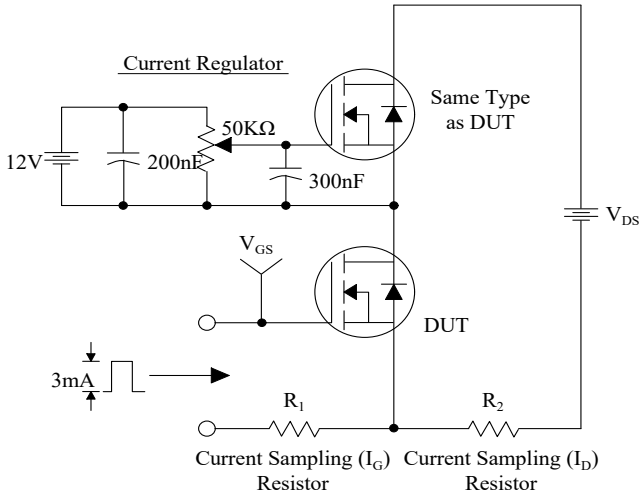
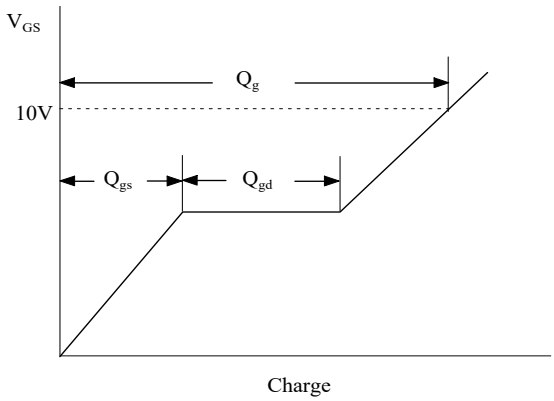


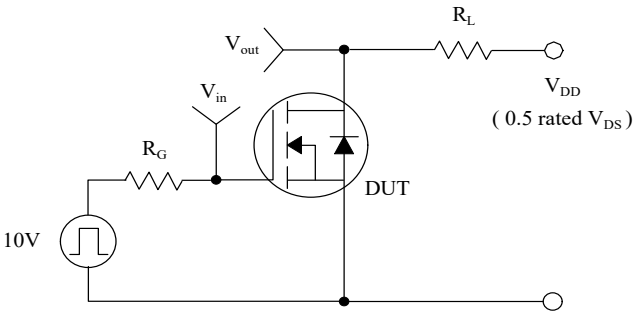
Figure 11. Transient Thermal Response Curve

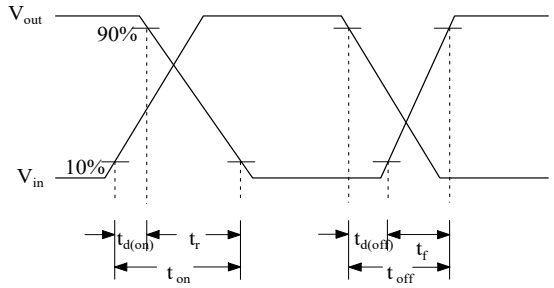
Gate Charge Test Circuit & Waveform



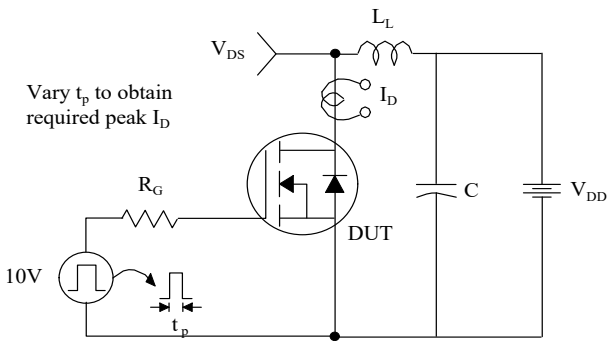


Resistive Switching Test Circuit & Waveforms

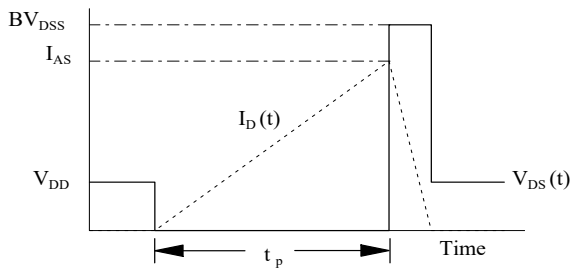




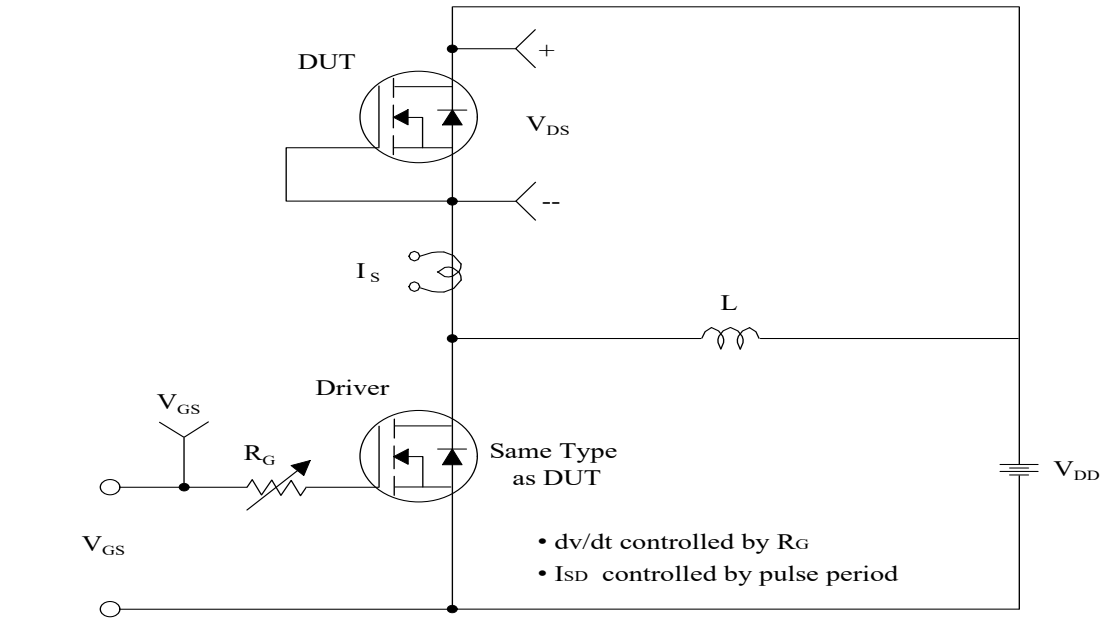
Unclamped Inductive Switching Test Circuit & Waveforms

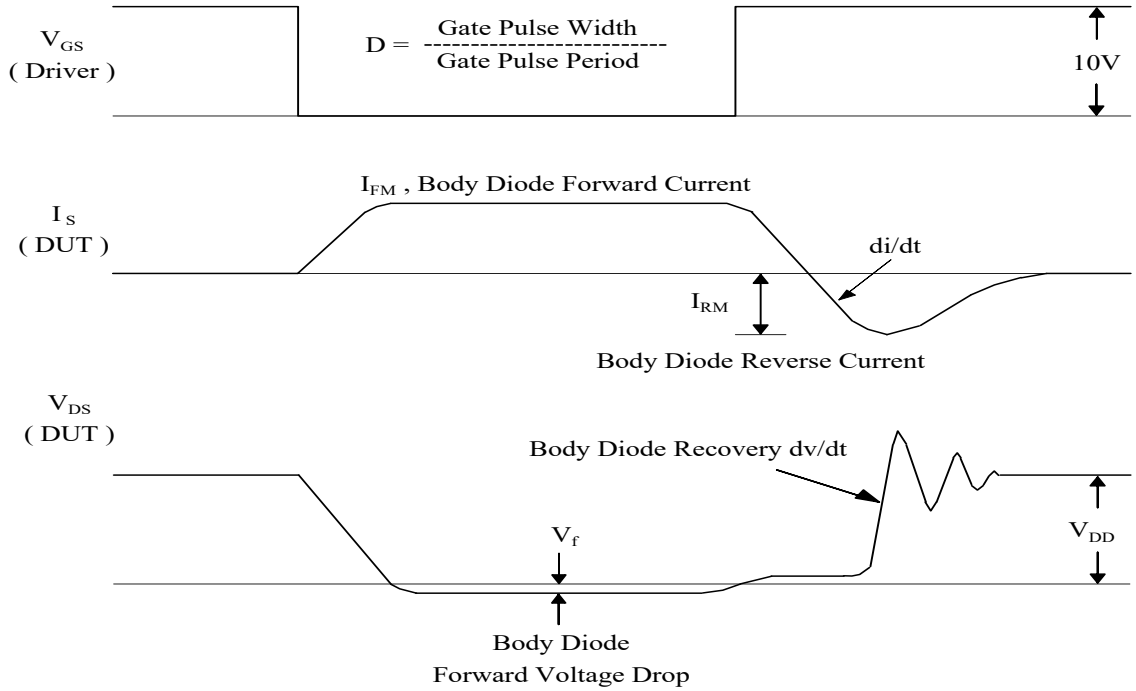


$$E_{AS} = \frac{1}{2} L_L I_{AS}^2$$



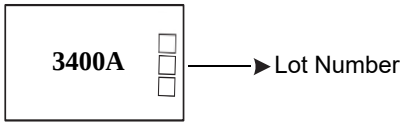
Peak Diode Recovery dv/dt Test Circuit & Waveforms

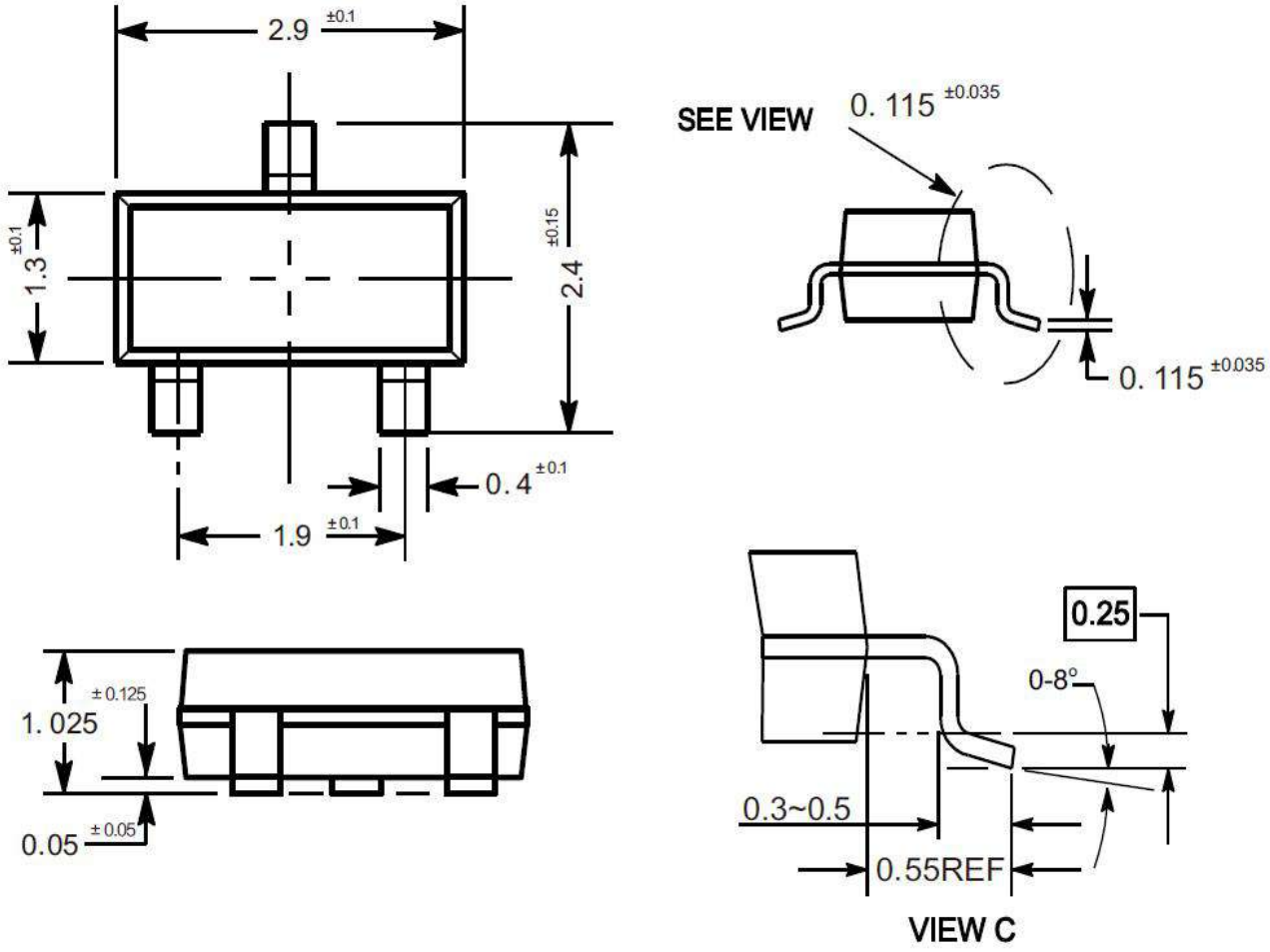




Ordering and Marking Information

Ordering Device No.	Marking	Package	Packing	Quantity
ASDM3400AZA-R	3400A	SOT-23	Tape&Reel	3000/Reel

PACKAGE	MARKING
SOT-23	


2.9 ±0.1
±0.1
1.3
±0.15
2.4
0.4 ±0.1
1.9 ±0.1
SEE VIEW
0. 115 ±0.035
0. 115 ±0.035
±0.125
1. 025
0.05 ±0.05
0.25
0-8°
0.3~0.5
0.55REF
VIEW C

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