General Description

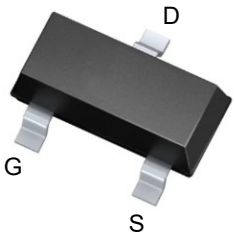
The MY2302 is the high cell density trenched N-CH MOSFET,which provides excellent $R_{DS(ON)}$ and efficiency for most of the small power switching and load s witch applications.

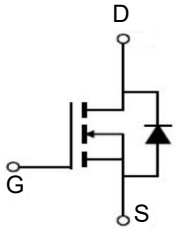
Features

V_{DSS}	20	V
I_D	2.3	A
$R_{DS(ON)}$(atV_{GS} =4.5V)	45	mΩ
$R_{DS(ON)}$(atV_{GS} =2.5V)	60	mΩ

Application

- Green Device Available
- Super Low Gate Charge
- Excellent Cdv/dt effect decline





Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
MY2302	SOT-23	A2SHB	3000

Absolute Maximum Ratings (T_A=25℃unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	±10	V
Drain Current-Continuous	I_D	2.3	A
Drain Current-Pulsed (Note 1)	I_{DM}	9.2	A
Maximum Power Dissipation	P_D	1.56	W
Operating Junction and Storage Temperature Range	T_J,T_{STG}	-55 To 150	℃
Thermal Resistance,Junction-to-Ambient (Note 2)	$R_{\theta JA}$	100	℃/W

Electrical Characteristics (T_A=25℃unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V I_D=250μA	--	20	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=20V,V_{GS}=0V	-	-	1	μA

Electrical Characteristics (T_J=25 ℃, unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±12V,V_{DS}=0V	-	-	±100	nA
On Characteristics (Note 3)						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250μA	0.5	0.75	1.2	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=4.5V, I_D=2.8A	-	45	65	mΩ
		V_{GS}=2.5V, I_D=2A	-	60	85	mΩ
Forward Transconductance	g_{FS}	V_{DS}=5V,I_D=2A	-	4.4	-	S
Dynamic Characteristics (Note4)						
Input Capacitance	C_{lss}	V_{DS}=10V,V_{GS}=0V F=1.0MHz	-	180	360	PF
Output Capacitance	C_{oss}		-	32	64	PF
Reverse Transfer Capacitance	C_{rss}		-	26	52	PF
Switching Characteristics (Note 4)						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=10V, R_L=3.3Ω V_{GS}=4.5V,R_{GEN}=6Ω	-	1.8	5	nS
Turn-on Rise Time	t_r		-	5.6	12	nS
Turn-Off Delay Time	$t_{d(off)}$		-	11.3	24	nS
Turn-Off Fall Time	t_f		-	3.2	7	nS
Total Gate Charge	Q_g	V_{DS}=10V,I_D=2.3 A V_{GS}=4.5V	-	3.6	7.2	nC
Gate-Source Charge	Q_{gs}		-	0.38	0.76	nC
Gate-Drain Charge	Q_{gd}		-	0.6	1.2	nC
Drain-Source Diode Characteristics						
Diode Forward Voltage (Note 3)	V_{SD}	V_{GS}=0V,I_S=2.3A	-	-	1.3	V
Diode Forward Current (Note 2)	I_S		-	-	2.3	A

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t ≤ 10 sec.
3. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production

Typical Electrical and Thermal Characteristics

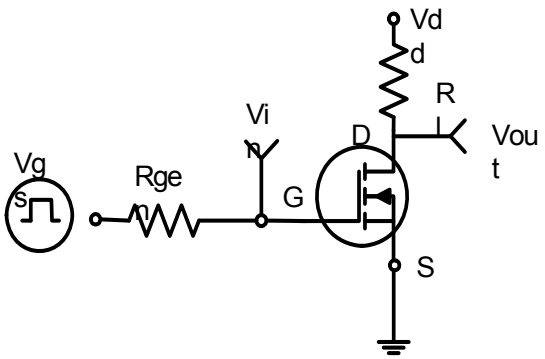


Figure 1:Switching Test Circuit

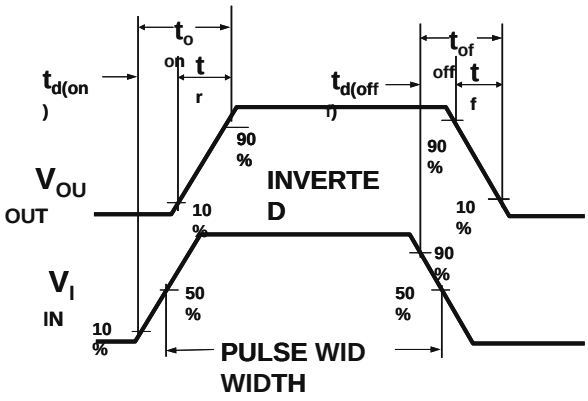


Figure 2:Switching Waveforms

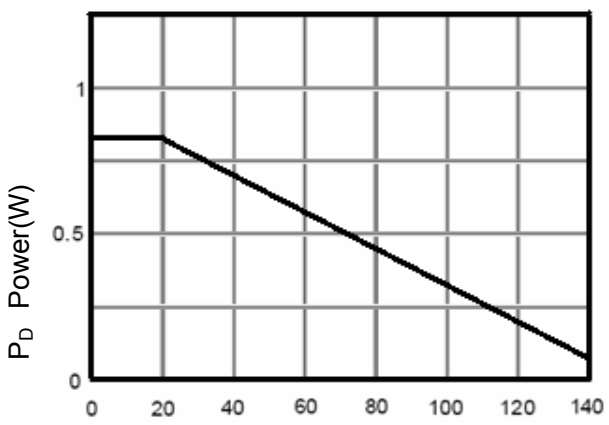


Figure 3 Power Dissipation

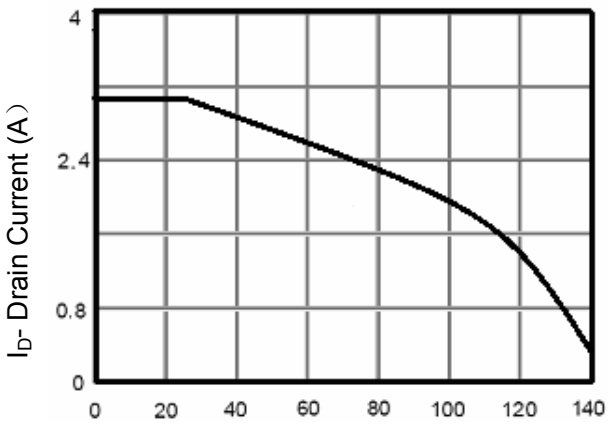


Figure 4 Drain Current

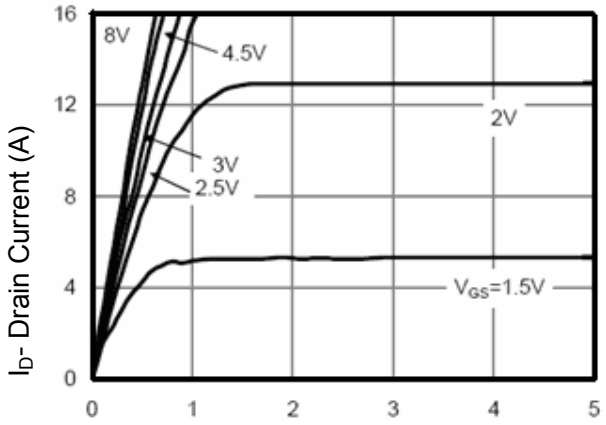


Figure 5 Output Characteristics

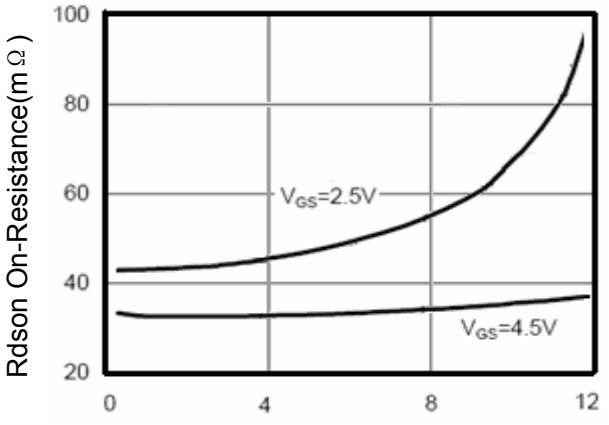


Figure 6 Drain-Source On-Resistance

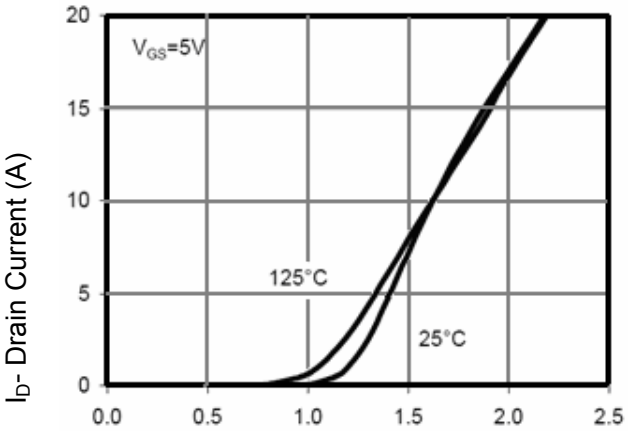


Figure 7 Transfer Characteristics

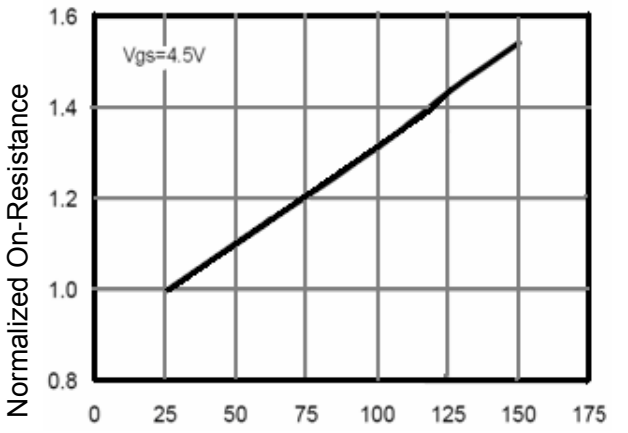
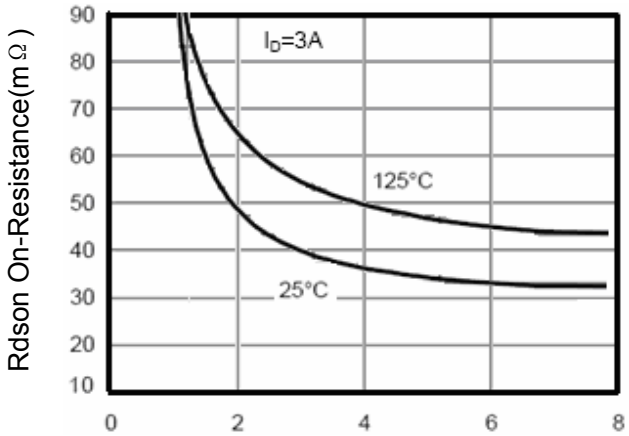


Figure 8 Drain-Source On-Resistance



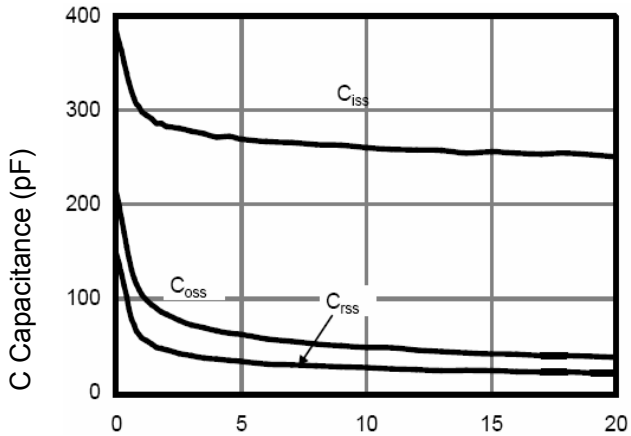


Figure 10 Capacitance vs Vds

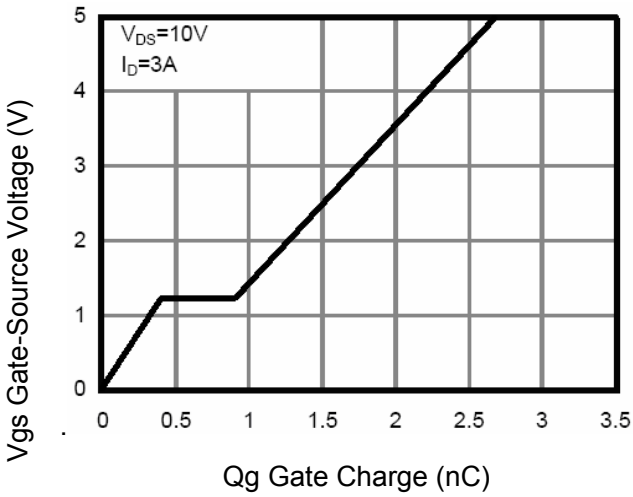


Figure 11 Gate Charge

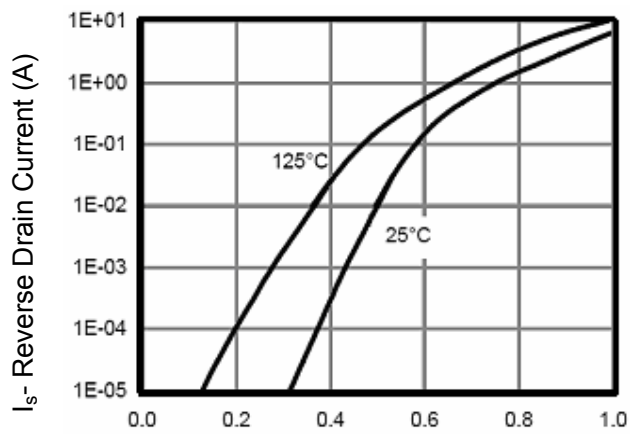
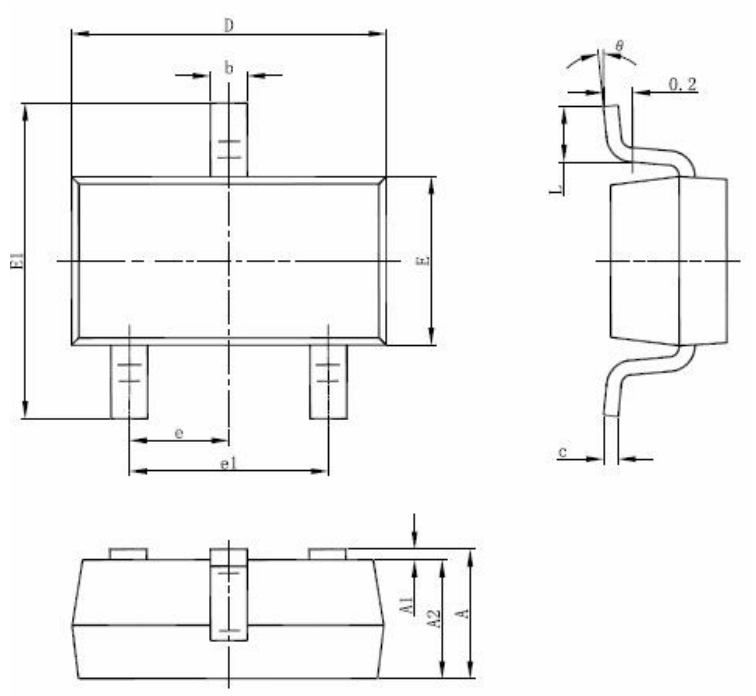


Figure 12 Source- Drain Diode Forward

Package Mechanical Data-SOT-23



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°