

General Description

The MY3400 is the high cell density trench N-CH MOSFET, which provides excellent $R_{DS(ON)}$ and efficiency for most of the small power switching and load switch applications.

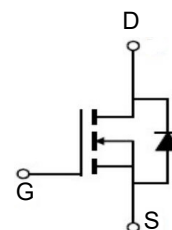
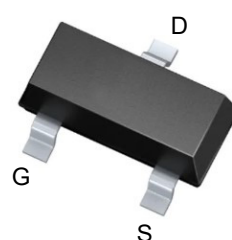


Features

V_{DSS}	20	V
I_D	3	A
$R_{DS(ON)}$ (at $V_{GS}=4.5V$)	37	m Ω
$R_{DS(ON)}$ (at $V_{GS}=2.5V$)	52	m Ω

Application

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



Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
MY3400	SOT-23	A09T	3000

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

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	± 10	V
Drain Current ^a	I_D	3	A
		2.1	
Drain Current – Pulsed ^a	I_{DM}	12	A
Total Power Dissipation ($T_C=25^\circ\text{C}$)	P_D	0.35	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 ~ +150	$^\circ\text{C}$
Thermal Resistance, Junction-to-Ambient ¹	$R_{\theta JA}$	100	$^\circ\text{C/W}$

Electrical Characteristics ($T_J=25\text{ }^{\circ}\text{C}$, 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, T _J =25°C	---	---	1	μA
Gate-Body Leakage	I _{GSS}	V _{GS} =±10V, V _{DS} =0V	---	---	±100	nA
On Characteristics ^a						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.4	0.75	1.1	V
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} =4.5V, I _D =3.0A	---	37	49	mΩ
		V _{GS} =2.5V, I _D =2.0A	---	52	69	
Drain-Source Diode Characteristics ^a						
Continuous Source Current	I _S	V _G =V _D =0V, Force Current	---	---	3	A
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =1A	---	---	1.3	V
Dynamic Characteristics ^b						
Input Capacitance	C _{iss}	V _{DS} =10V, V _{GS} =0V, F=1MHz	---	280	---	pF
Output Capacitance	C _{oss}		---	46	---	
Reverse Transfer Capacitance	C _{rss}		---	29	---	
Switching Characteristics ^b						
Total Gate Charge	Q _g	V _{DS} =10V, V _{GS} =4.5V, I _D =3.0A	---	2.9	---	nC
Gate-Source Charge	Q _{gs}		---	0.4	---	
Gate-Drain Charge	Q _{gd}		---	0.6	---	
Turn-On Delay Time	T _{d(on)}	V _{DD} =10V, V _{GS} =4.5V R _{GEN} =3Ω, R _L =1.5Ω	---	13	---	ns
Rise Time	T _r		---	54	---	
Turn-Off Delay Time	T _{d(off)}		---	18	---	
Fall Time	T _f		---	11	---	

Notes: a. Repetitive Rating: Pulsed width limited by maximum junction temperature.

b. Pulse test: pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.

c. Guaranteed by design, not subject to production testing.

Typical Electrical and Thermal Characteristics

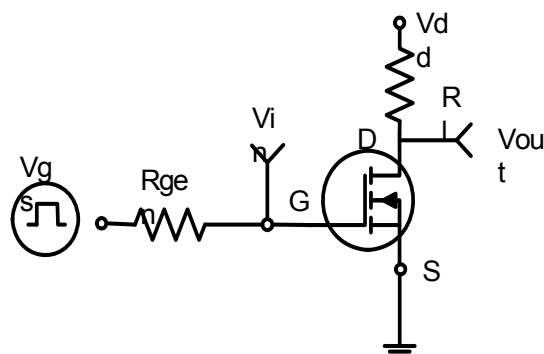


Figure 1: Switching Test Circuit

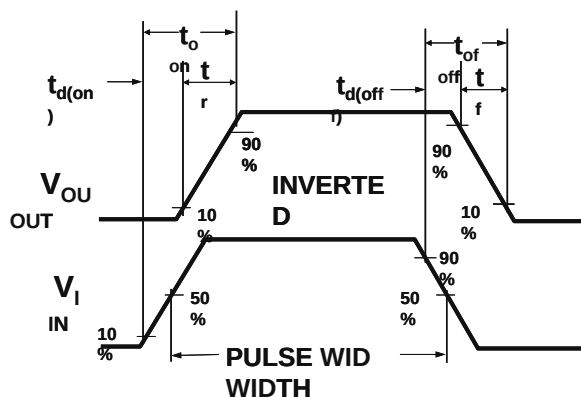


Figure 2: Switching Waveforms

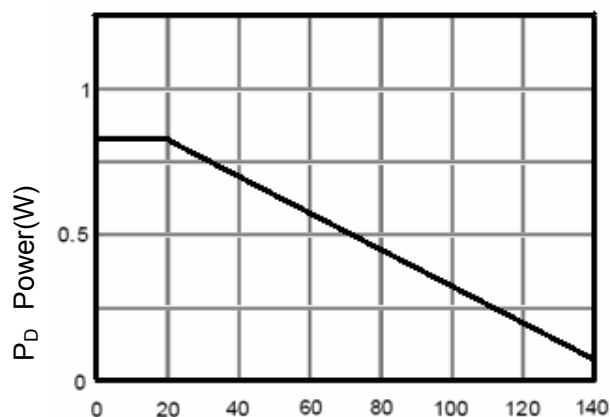


Figure 3 Power Dissipation

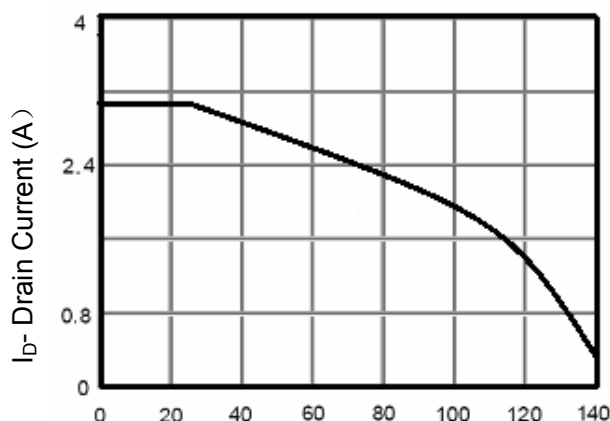


Figure 4 Drain Current

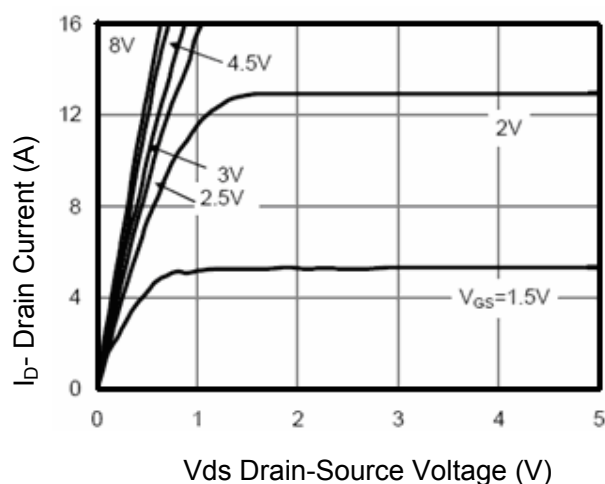


Figure 5 Output Characteristics

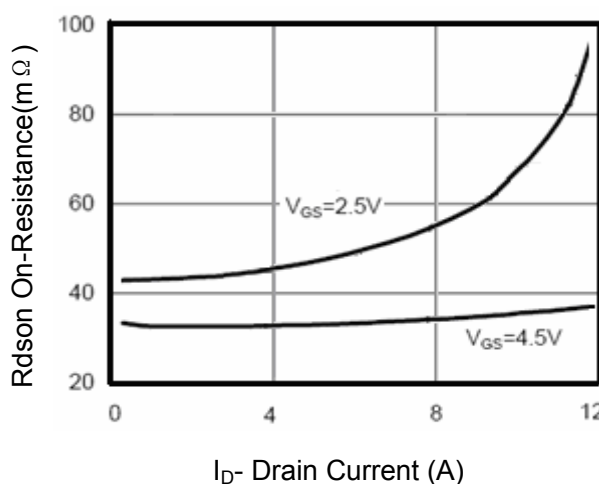


Figure 6 Drain-Source On-Resistance

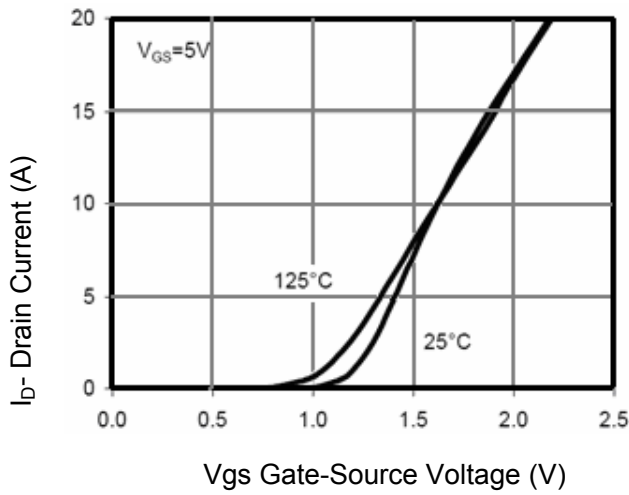


Figure 7 Transfer Characteristics

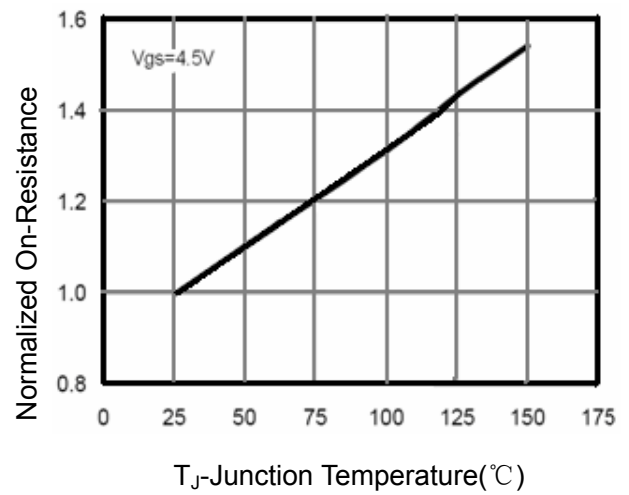


Figure 8 Drain-Source On-Resistance

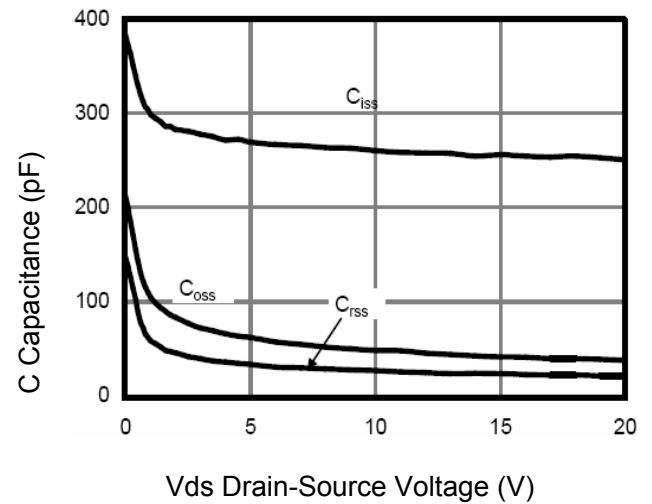
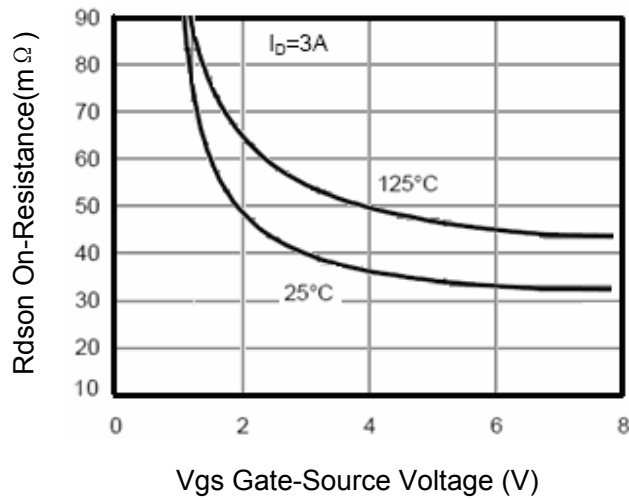


Figure 10 Capacitance vs Vds

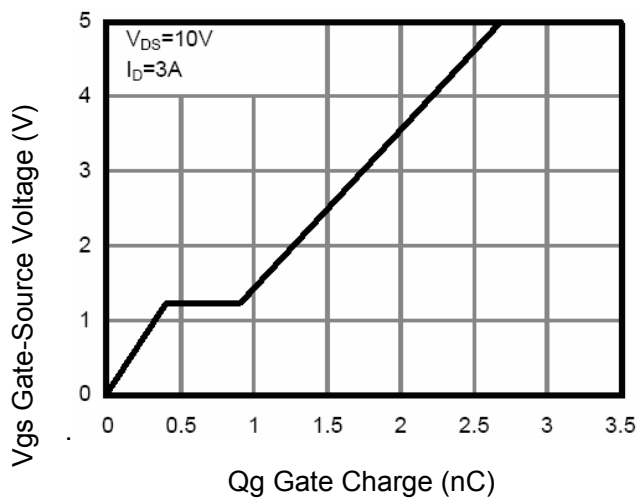


Figure 11 Gate Charge

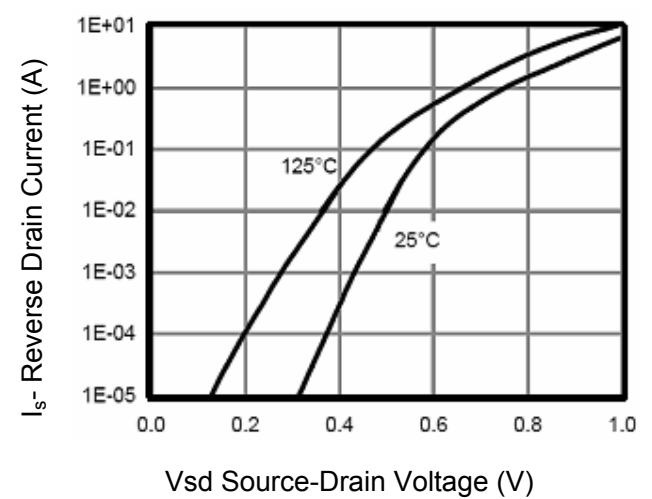
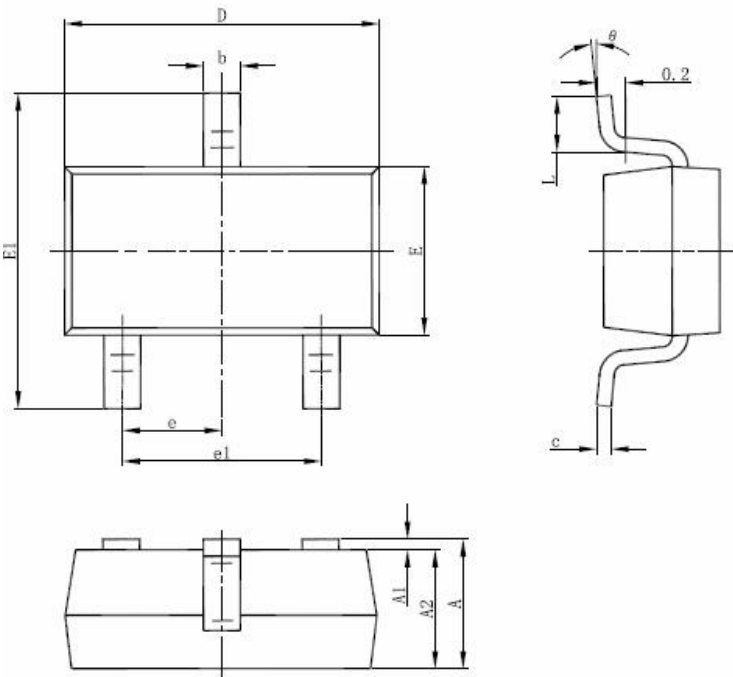


Figure 12 Source- Drain Diode Forward

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°