

## General Description

The MY3400 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 switch applications.

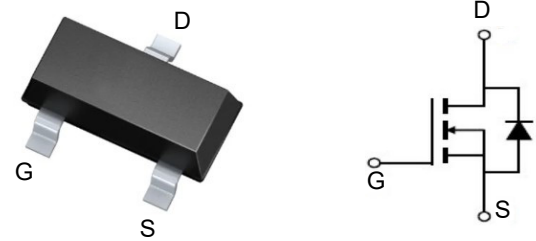


## Features

$V_{DSS}$	20	V
$I_D$	3	A
$R_{DS(ON)}$ (at $V_{GS}=4.5V$ )	35	$m\Omega$
$R_{DS(ON)}$ (at $V_{GS}=2.5V$ )	42	$m\Omega$

## 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 ( $T_A=25^\circ C$ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	$V_{DS}$	20	V
Gate-Source Voltage	$V_{GS}$	$\pm 12$	V
Drain Current-Continuous	$I_D$	3.0	A
Drain Current-Pulsed (Note 1)	$I_{DM}$	12	A
Maximum Power Dissipation	$P_D$	0.8	W
Operating Junction and Storage Temperature Range	$T_J, T_{STG}$	-55 To 150	$^\circ C$
Thermal Resistance, Junction-to-Ambient (Note 2)	$R_{\theta JA}$	156	$^\circ C/W$

## Electrical Characteristics ( $T_A=25^\circ C$ unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
<b>Off Characteristics</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS}=0V, I_D=250\mu A$	20	22	-	V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=20V, V_{GS}=0V$	-	-	1	$\mu A$

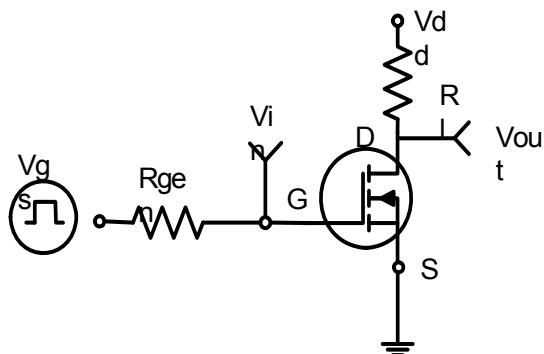
**Electrical Characteristics (T<sub>J</sub>=25 °C, unless otherwise noted)**

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Gate-Body Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±12V, V <sub>DS</sub> =0V	-	-	±100	nA
<b>On Characteristics</b> (Note 3)						
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	0.5	0.75	1.2	V
Drain-Source On-State Resistance	R <sub>DS(ON)</sub>	V <sub>GS</sub> =2.5V, I <sub>D</sub> =2.8A	-	42	80	mΩ
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =3A	-	35	50	mΩ
Forward Transconductance	g <sub>FS</sub>	V <sub>DS</sub> =5V, I <sub>D</sub> =3A	-	5	-	S
<b>Dynamic Characteristics</b> (Note4)						
Input Capacitance	C <sub>ISS</sub>	V <sub>DS</sub> =10V, V <sub>GS</sub> =0V F=1.0MHz	-	240	-	PF
Output Capacitance	C <sub>OSS</sub>		-	45	-	PF
Reverse Transfer Capacitance	C <sub>rss</sub>		-	23	-	PF
<b>Switching Characteristics</b> (Note 4)						
Turn-on Delay Time	t <sub>d(on)</sub>	V <sub>DD</sub> =10V, R <sub>L</sub> =3.3Ω V <sub>GS</sub> =4.5V, R <sub>GEN</sub> =6Ω	-	2.3	-	nS
Turn-on Rise Time	t <sub>r</sub>		-	3.1	-	nS
Turn-Off Delay Time	t <sub>d(off)</sub>		-	20	-	nS
Turn-Off Fall Time	t <sub>f</sub>		-	2.5	-	nS
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =10V, I <sub>D</sub> =3A V <sub>GS</sub> =4.5V	-	2.7	5	nC
Gate-Source Charge	Q <sub>gs</sub>		-	0.4	-	nC
Gate-Drain Charge	Q <sub>gd</sub>		-	0.5	-	nC
<b>Drain-Source Diode Characteristics</b>						
Diode Forward Voltage (Note 3)	V <sub>SD</sub>	V <sub>GS</sub> =0V, I <sub>S</sub> =3A	-	-	1.2	V
Diode Forward Current (Note 2)	I <sub>S</sub>		-	-	3	A

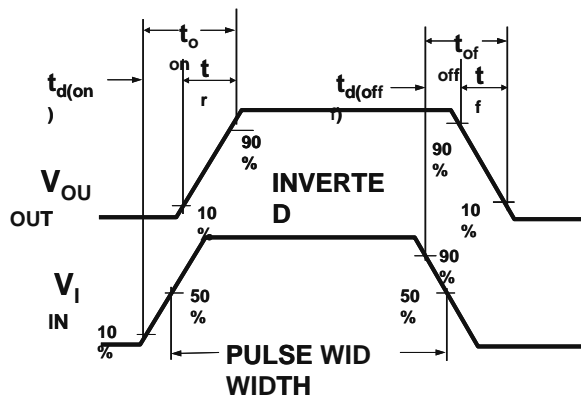
**Notes:**

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

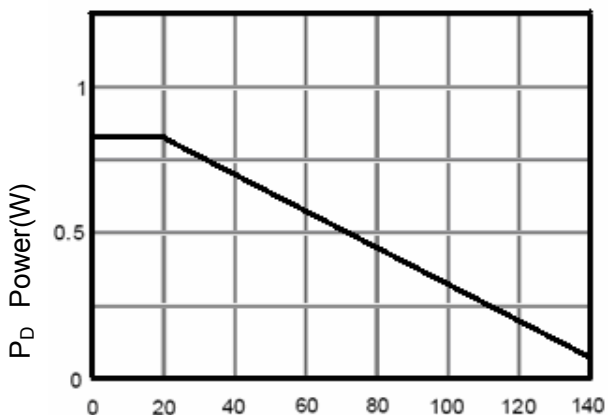
**Typical Electrical and Thermal Characteristics**



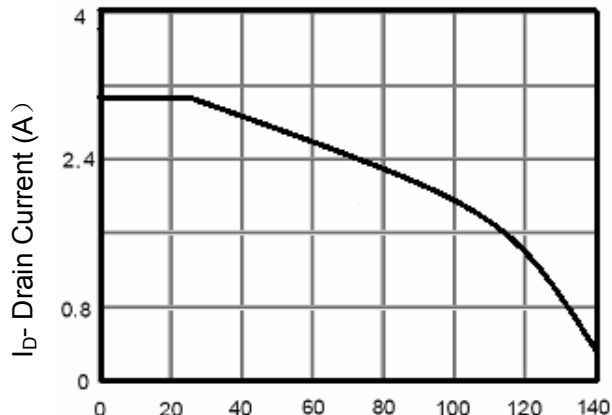
**Figure 1: Switching Test Circuit**



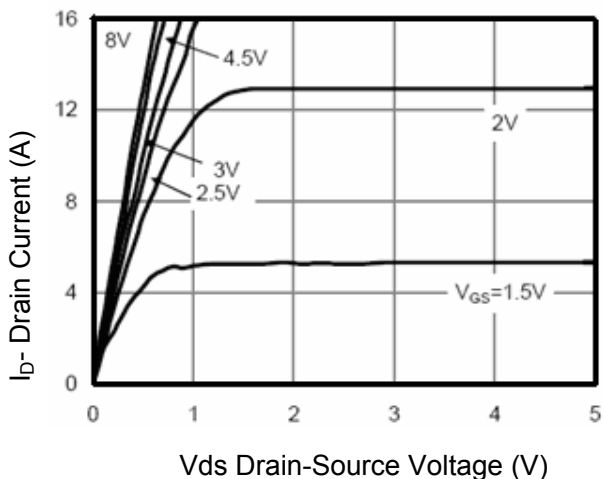
**Figure 2: Switching Waveforms**



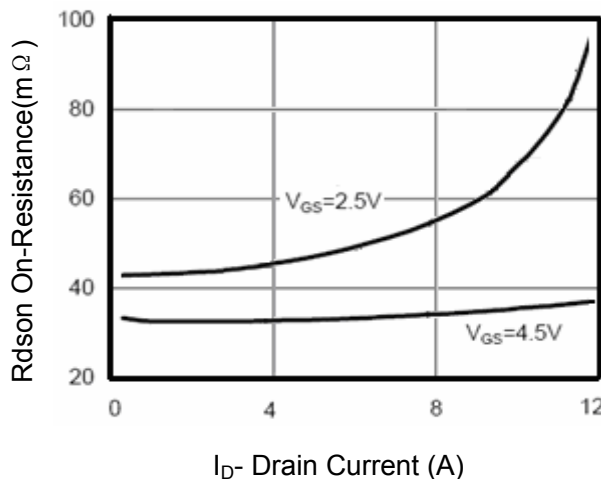
**Figure 3 Power Dissipation**



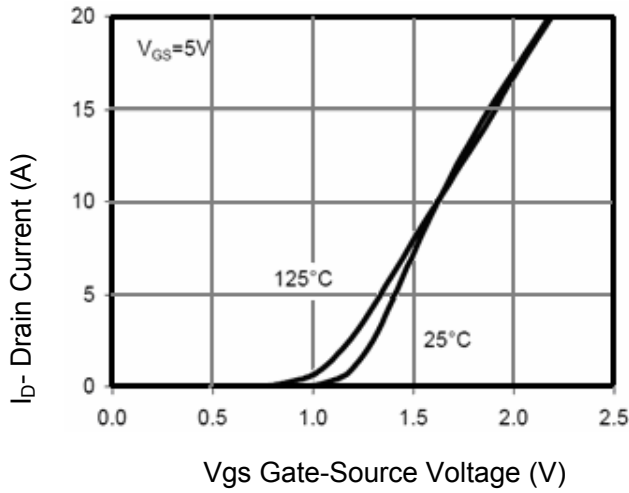
**Figure 4 Drain Current**



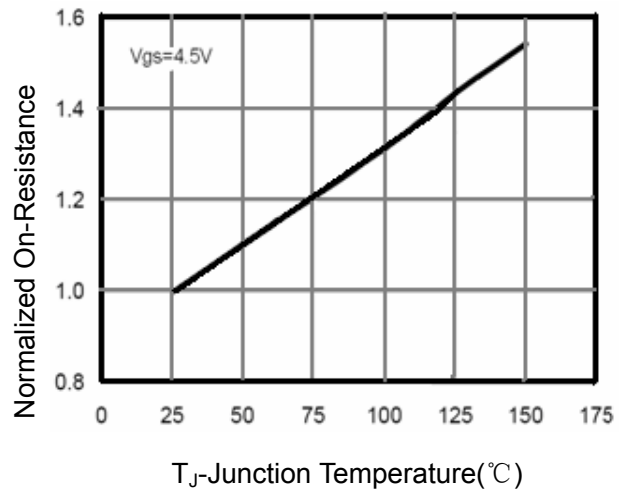
**Figure 5 Output Characteristics**



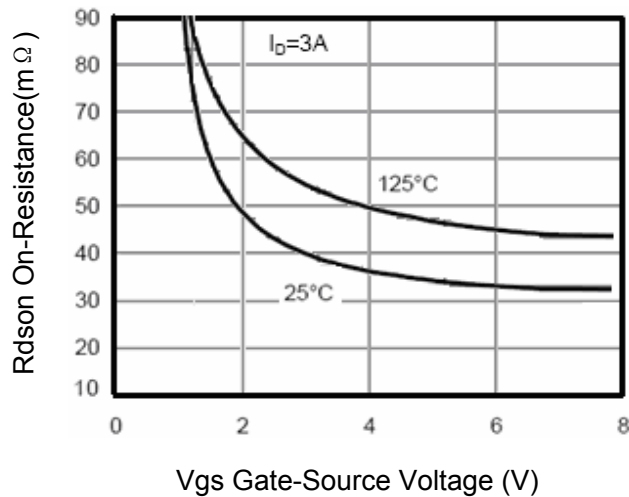
**Figure 6 Drain-Source On-Resistance**



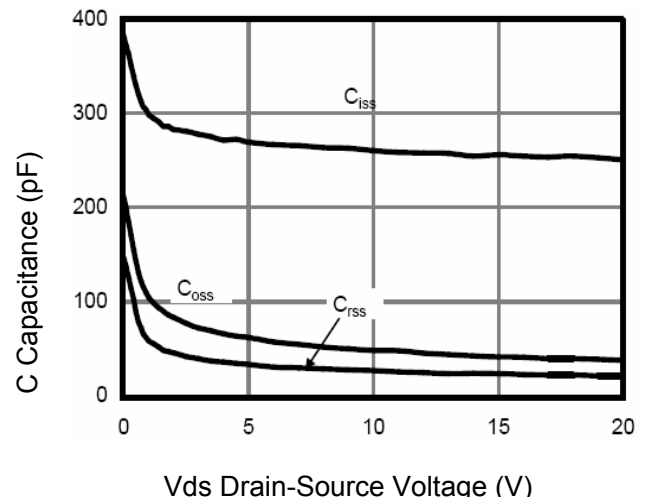
**Figure 7 Transfer Characteristics**



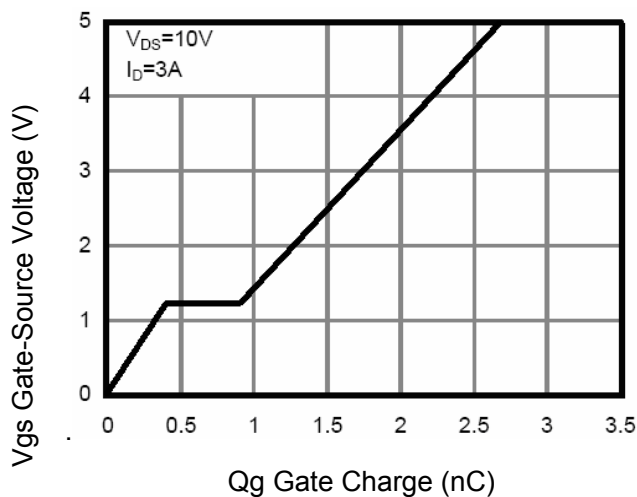
**Figure 8 Drain-Source On-Resistance**



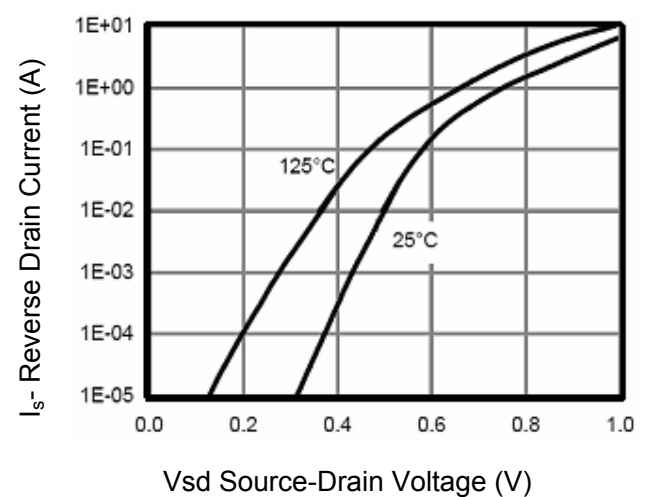
**Figure 9 Rdson vs Vgs**



**Figure 10 Capacitance vs Vds**

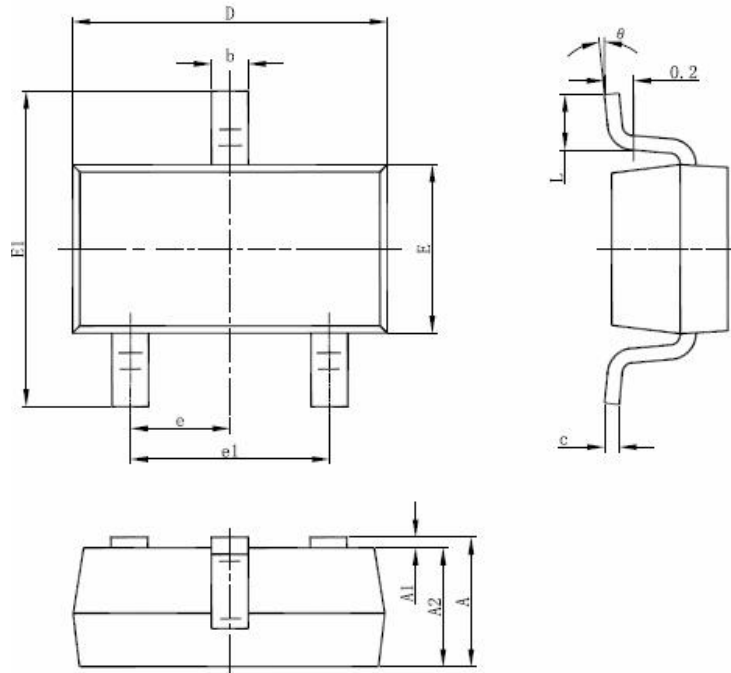


**Figure 11 Gate Charge**



**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°