N-Channel Enhancement Mode MOSFET

Description

The NP3400MR-S uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and high density cell Design for ultra low on-resistance. This device is suitable for use as a load switch or in PWM applications.

General Features

- V_{DS} =30V，I_D =5.8A
  $R_{DS(ON)}$(Typ.)=24mΩ   @V_{GS}=4.5V
  $R_{DS(ON)}$(Typ.)=35mΩ   @V_{GS}=2.5V
- High power and current handing capability
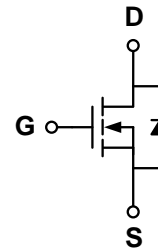- Lead free product is acquired
- Surface mount package

Application
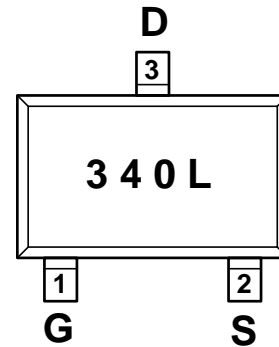
- PWM applications
- Load switch

Package

- SOT-23-3L

Schematic diagram

D

G

S

Marking and pin assignment

SOT-23-3L
(TOP VIEW)

D

3

3 4 0 L

1   2

G   S

Ordering Information

Part Number	Storage Temperature	Package	Devices Per Reel
NP3400MR-S-G	-55°C to +150°C	SOT-23-3L	3000

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

parameter	symbol	limit	unit
Drain-source voltage	V_{DS}	30	V
Gate-source voltage	V_{GS}	±12	V
Drain current-continuous[a]@Tj=125℃	I_D	5.8	A
-pulse d[b]	I_{DM}	30	A
Drain-source Diode forward current	Is	2	A
Maximum power dissipation	P_D	1.4	W
Operating junction Temperature range	Tj	-55—150	℃

Electrical Characteristics (TA=25℃ unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
OFF Characteristics						
Drain-source breakdown voltage	BV_{DSS}	$V_{GS}=0V$, $I_D=250\mu A$	30	-	-	V
Zero gate voltage drain current	I_{DSS}	$V_{DS}=30V$, $V_{GS}=0V$	-	-	1	μA
Gate-body leakage	I_{GSS}	$V_{DS}=0V$, $V_{GS}=\pm12V$	-	-	±100	nA
ON Characteristics						
Gate threshold voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$, $I_D=250\mu A$	0.45	0.62	0.85	V
Drain-source on-state resistance	$R_{DS(ON)}$	$V_{GS}=4.5V$, $I_D=5A$	-	24	35	mΩ
		$V_{GS}=2.5V$, $I_D=4A$		35	45	
Forward transconductance	gfs	$V_{GS}=5V$, $I_D=5.8A$	-	33	-	S
Dynamic Characteristics						
Input capacitance	C_{ISS}	$V_{DS}=15V$,$V_{GS}=0V$ f=1.0MHz	-	473	-	pF
Output capacitance	C_{OSS}		-	57	-	
Reverse transfer capacitance	C_{RSS}		-	43	-	
Switching Characteristics						
Turn-on delay time	$t_{D(ON)}$	$V_{DS}=15V$ $V_{GS}=10V$ $R_L=2.6$ ohm $R_{GEN}=3$ohm	-	3	-	ns
Rise time	tr		-	2.5	-	
Turn-off delay time	$t_{D(OFF)}$		-	25	-	
Fall time	tf		-	4	-	
Total gate charge	Qg	$V_{DS}=15V$,$I_D=5A$ $V_{GS}=4.5V$	-	5.6	-	nC
Gate-source charge	Qgs		-	1.1	-	
Gate-drain charge	Qgd		-	1.2	-	
DRAIN-SOURCE DIODE CHARACTERISTICS						
Diode forward voltage	V_{SD}	$V_{GS}=0V$,Is=1A	-	0.76	1.16	V

Notes:

a. surface mounted on FR4 board,t≤10sec

b. pulse test: pulse width≤300μs,duty≤2%

c. guaranteed by design, not subject to production testing

Thermal Characteristics

Thermal Resistance junction-to ambient	Rth JA	100	℃/W

Typical Performance Characteristics
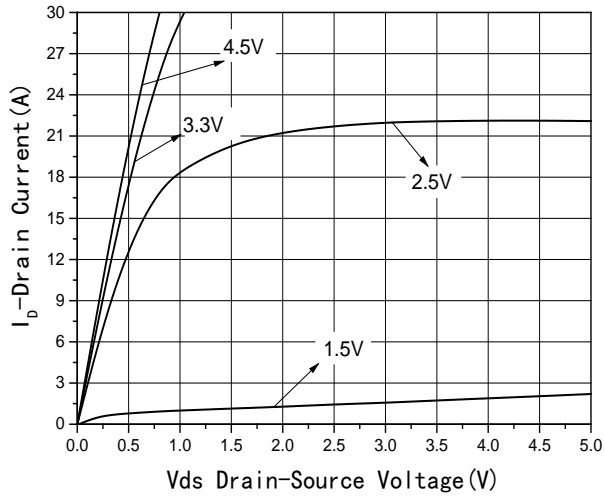

Fig1 Output Characteristics
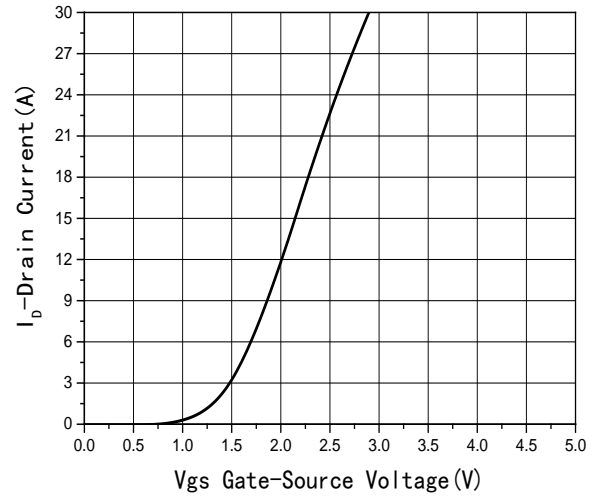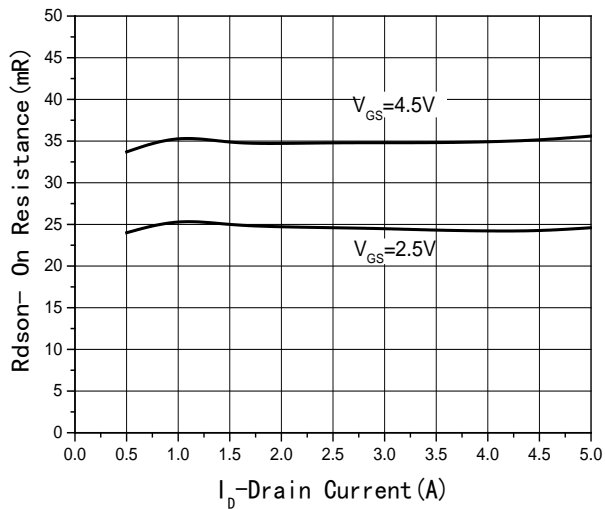

Fig2 Transfer Characteristics

Fig3 Rdson-Drain current
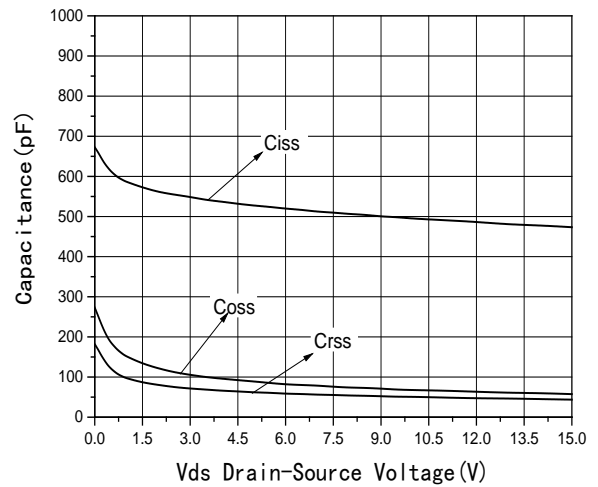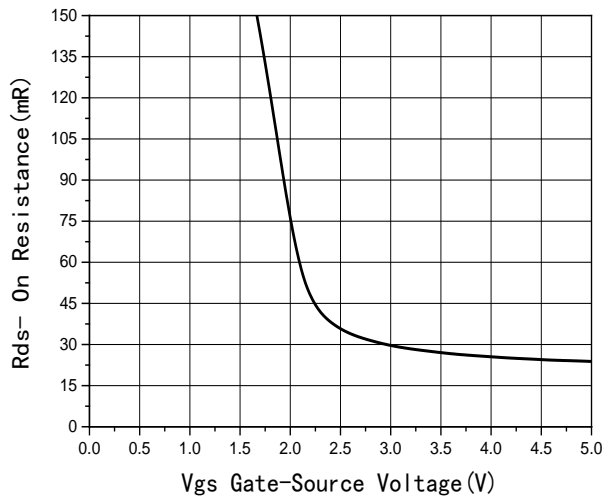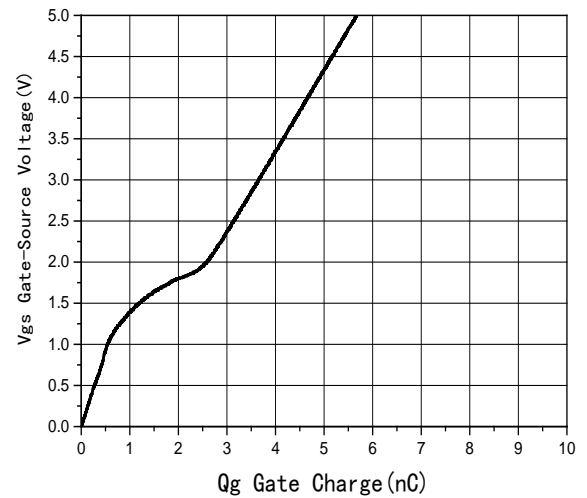

Fig4 Capacitance vs Vds

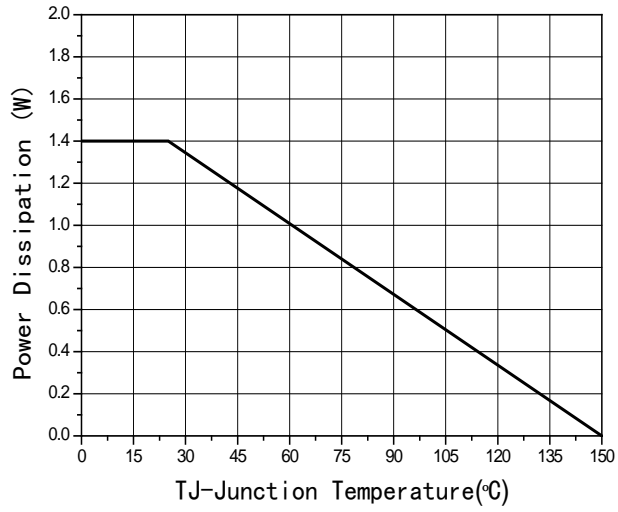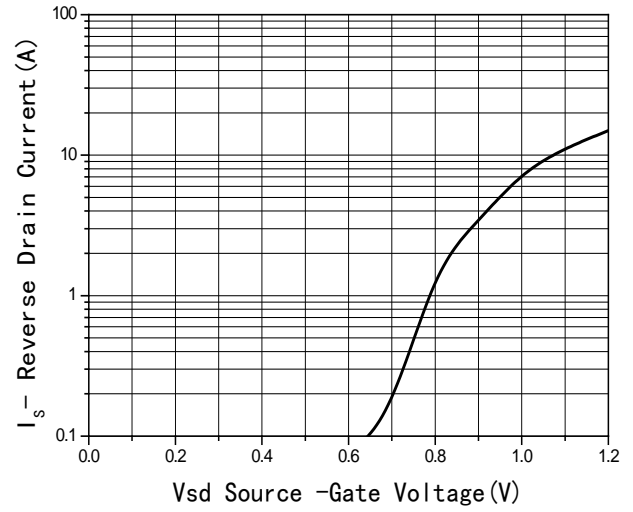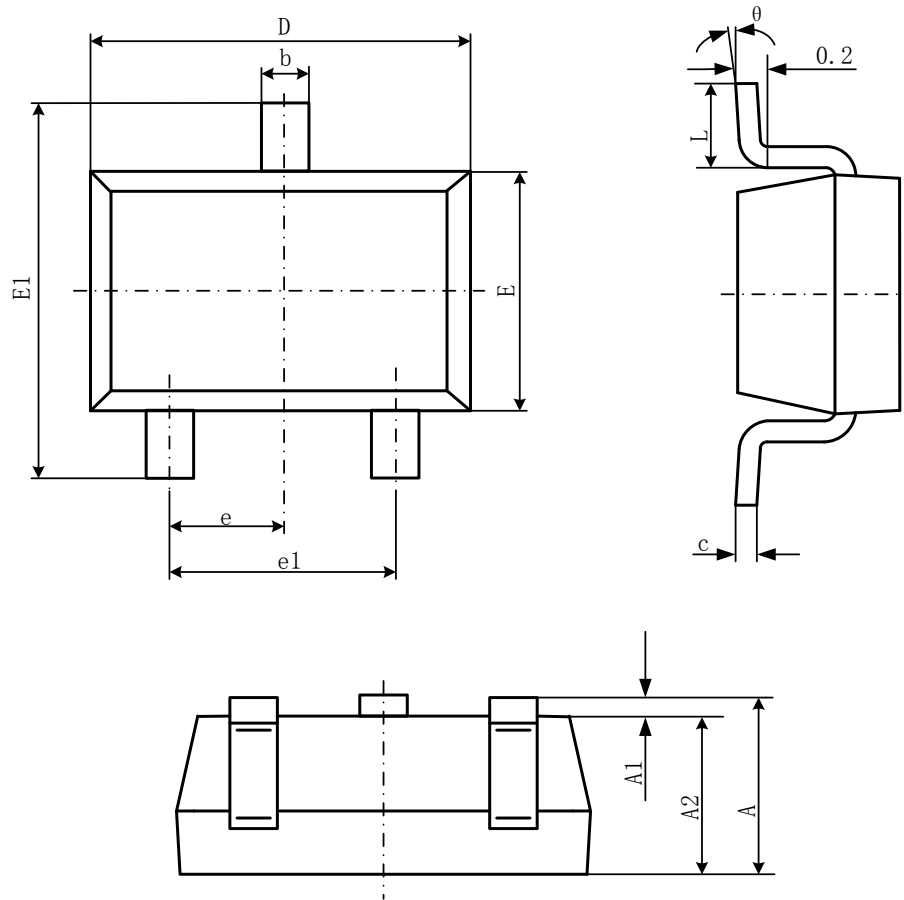Fig5 Rdson-Gate Drain voltage

Fig6 Gate Charge

Fig7 Power De-rating

Fig8 Source-Drain Diode Forward

Package Information

● **SOT-23-3L**

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°

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for MOSFET *category:*

Click to view products by NATLINEAR *manufacturer:*

Other Similar products are found below :

614233C 648584F IRFD120 IRFF430 JANTX2N5237 2N7000 FCA20N60_F109 FDZ595PZ AOD464 2SK2267(Q) 2SK2545(Q,T) 405094E 423220D MIC4420CM-TR VN1206L 614234A 715780A SSM6J414TU,LF(T 751625C PSMN4R2-30MLD TK31J60W5,S1VQ(O 2SK2614(TE16L1,Q) DMN1017UCP3-7 EFC2J004NUZTDG FCAB21350L1 P85W28HP2F-7071 DMN1053UCP4-7 NTE2384 NTE2969 NTE6400A DMN2080UCB4-7 DMN61D9UWQ-13 US6M2GTR DMN31D5UDJ-7 SSM6P54TU,LF DMP22D4UFO-7B IPS60R3K4CEAKMA1 DMN1006UCA6-7 DMN16M9UCA6-7 STF5N65M6 STU5N65M6 C3M0021120D DMN13M9UCA6-7 BSS340NWH6327XTSA1 MCM3400A-TP DMTH10H4M6SPS-13 IRF40SC240ARMA1 IPS60R1K0PFD7SAKMA1 IPS60R360PFD7SAKMA1 IPS60R600PFD7SAKMA1