MY30P02NE3

-20V P-Channel Enhancement Mode MOSFET

MAOYUANWEI semiconductor

General Description

The MY30P02NE3 is the single P-Channel logic enhancement mode power field effect transistors to provide excellent $R_{DS(on)}$, low gate charge and low gate resistance.

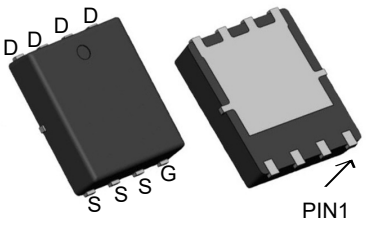
RoHS Compliant

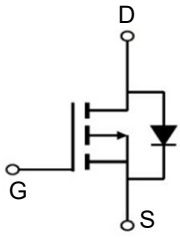
Features

V_{DSS}	-20	V
I_D	-30	A
$R_{DS(ON)}$(atV_{GS} =-4.5V)	10	mÝ
$R_{DS(ON)}$(atV_{GS} =-2.5V)	13	mÝ

Application

- Battery protection System
- Switching power supply, SMPS
- DC/DC Converter
- DC/AC Converter
- Load Switch





Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
MY30P02NE3	PDFN3*3-8L	MY30P02NE3	5000

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

Symbol	Parameter	Rating	Units
VDS	Drain- Source Voltage	-20	V
VGS	Gate- Source Voltage	±20	V
I_D@T_A=25℃	Drain Current[3] , V_{GS} @ 10V	-30	A
I_D@T_A=70℃	Drain Current[3] , V_{GS} @ 10V	-18	A
IDM	Pulsed Drain Current[1]	-68	A
P_D@T_A=25℃	Total Power Dissipation	12	W
TSTG	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃
Rthj-c	Maximum Thermal Resistance, Junction- case	18	℃/W
Rthj-a	Maximum Thermal Resistance, Junction- ambient[3]	12	℃/W

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

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=-250uA	-20	-	-	V
RDS(ON)	Static Drain-Source On-Resistance[2]	V_{GS}=- 4.5V, I_D=-10A	-	10	15	mΩ
		V_{GS}=-2.5V, I_D=- 8A	-	13	18	mΩ
VGS(th)	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=-250uA	-0.4	-0.7	-1.0	V
g_{fs}	Forward Transconductance	V_{DS}=- 5V, I_D=-10A	-	43	-	S
IDSS	Drain-Source Leakage Current	V_{DS}=-15V, V_{GS}=0V	-	-	-1	uA
IGSS	Gate-Source Leakage	V_{GS}=±12V, V_{DS}=0V	-	-	±100	nA
Q_g	Total Gate Charge	I_D=-10A V_{DS}=- 10V V_{GS}=-4.5V	-	35	-	nC
Q_{gs}	Gate-Source Charge		-	5	-	nC
Q_{gd}	Gate-Drain ("Miller") Charge		-	10	-	nC
td(on)	Turn-on Delay Time	V_{DS}=- 10V I_D=- 10A R_G=3.3Ω V_{GS}=- 4.5V	-	12	-	ns
t_r	Rise Time		-	40	-	ns
td(off)	Turn-off Delay Time		-	30	-	ns
t_f	Fall Time		-	10	-	ns
C_{iss}	Input Capacitance	V_{GS}=0V V_{DS}=- 15V f=1.0MHz. I_S=-10A, V_{GS}=0V, dI/dt=100A/μs	-	2000	-	pF
Coss	Output Capacitance		-	690	-	pF
C_{rss}	Reverse Transfer Capacitance		-	590	-	pF
trr	Reverse Recovery Time		-	27	-	ns
Q_{rr}	Reverse Recovery Charge		-	17.8	-	nC

Notes:
1.Pulse width limited by Max. junction temperature.
2.Pulse test

Typical Characteristics

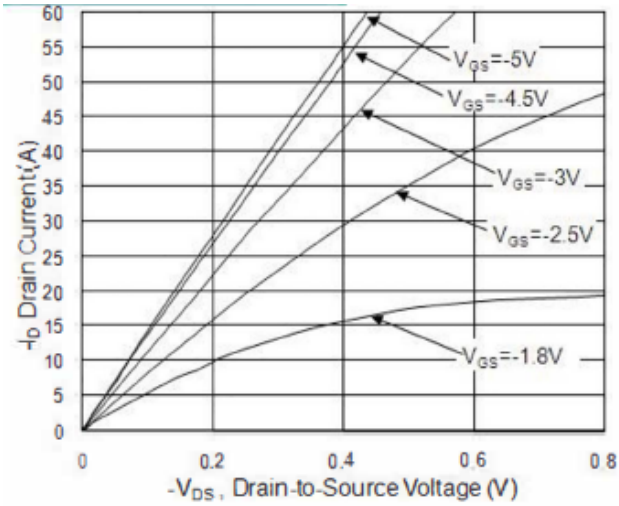


Fig.1 Typical Output Characteristics

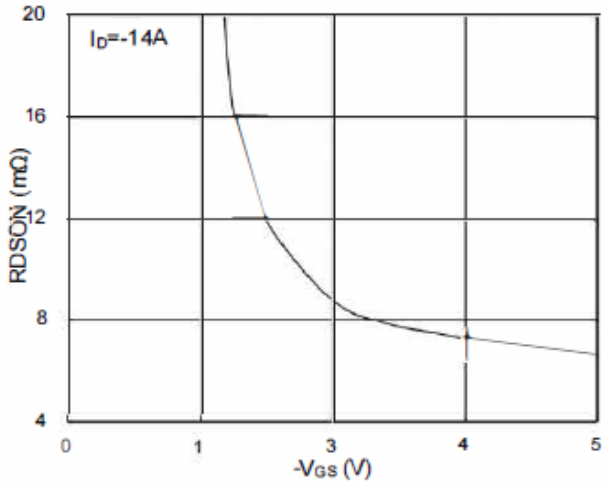


Fig.2 On-Resistance vs. G-S Voltage

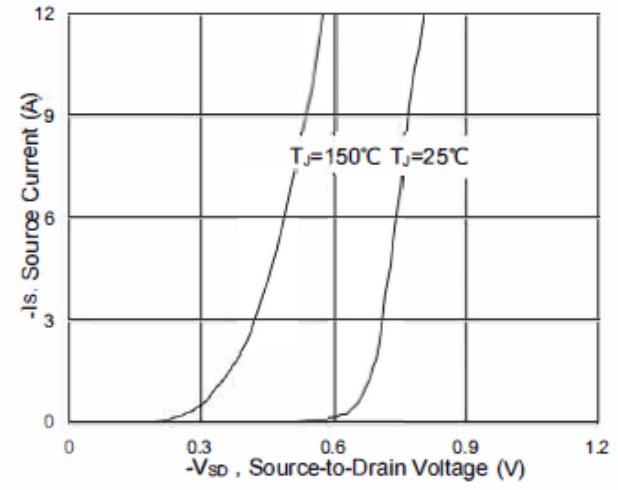


Fig.3 Forward Characteristics of Reverse

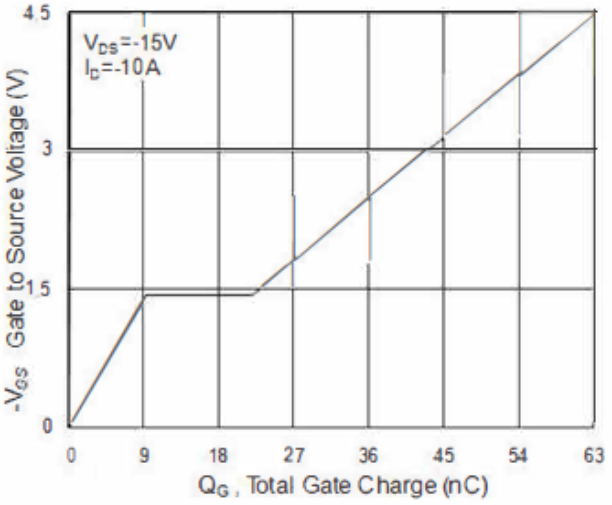
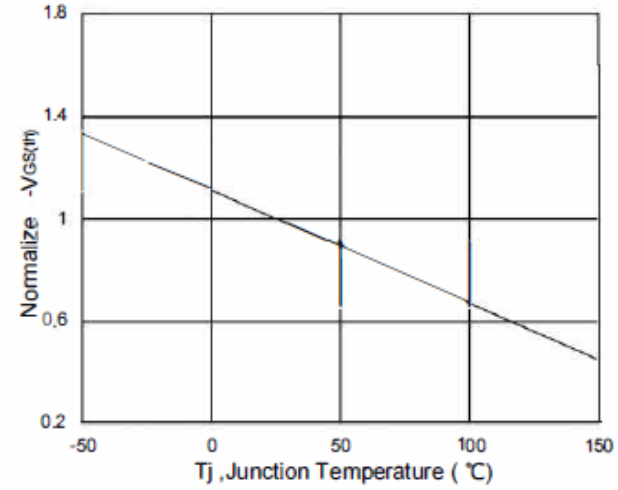
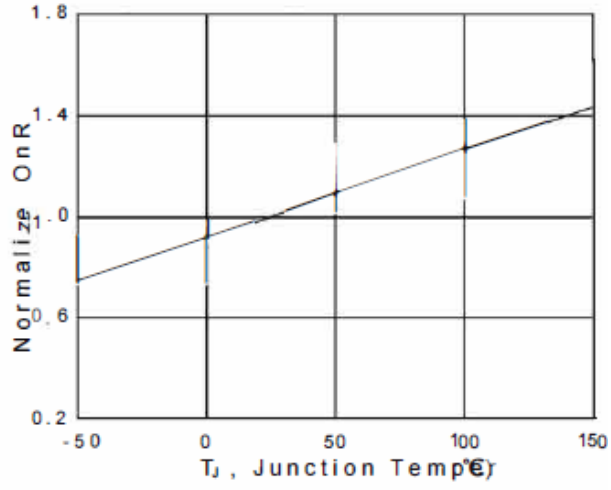


Fig.4 Gate-charge Characteristics





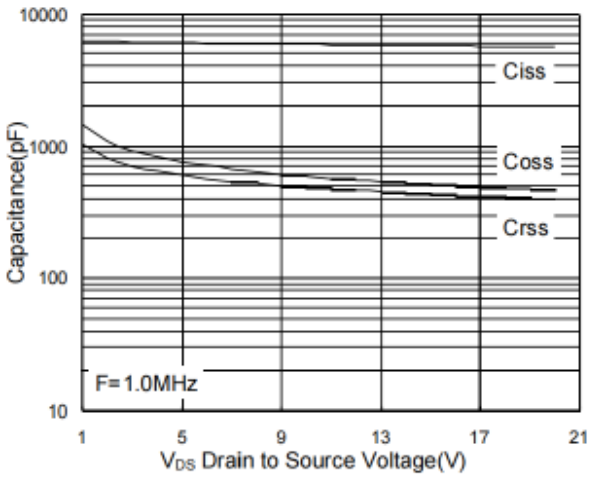


Fig.7 Capacitance

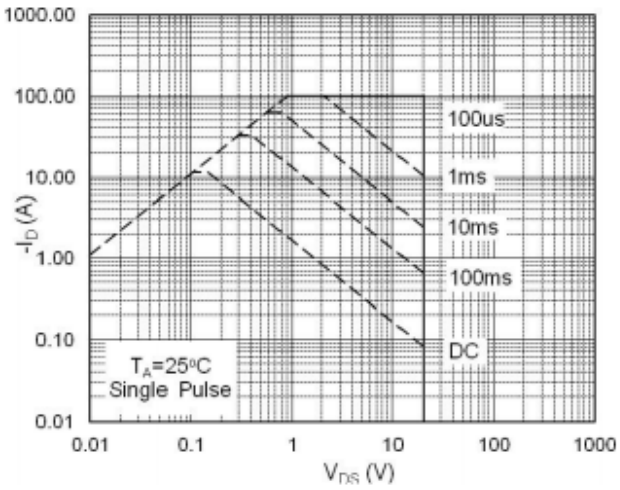


Fig.8 Safe Operating Area

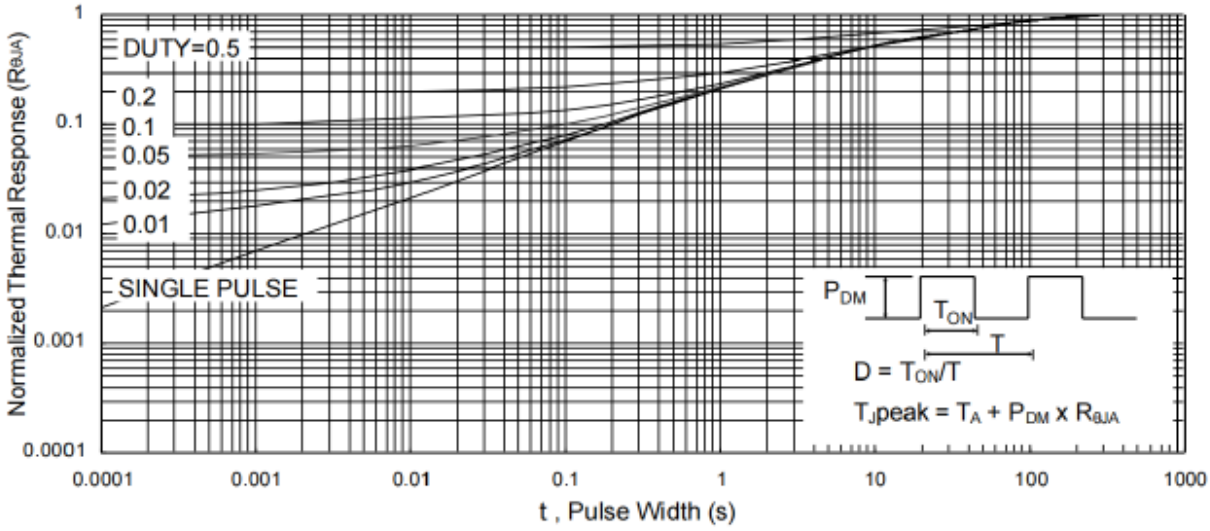


Fig.9 Normalized Maximum Transient Thermal Impedance

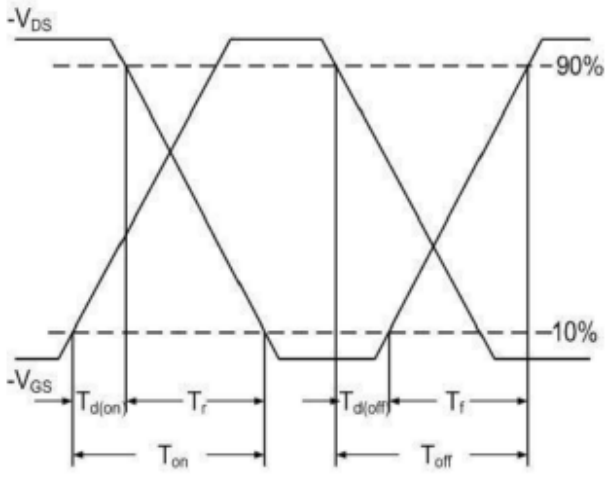


Fig.10 Switching Time Waveform

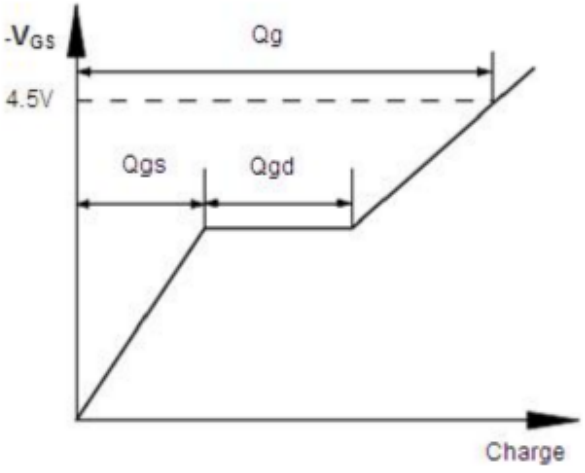
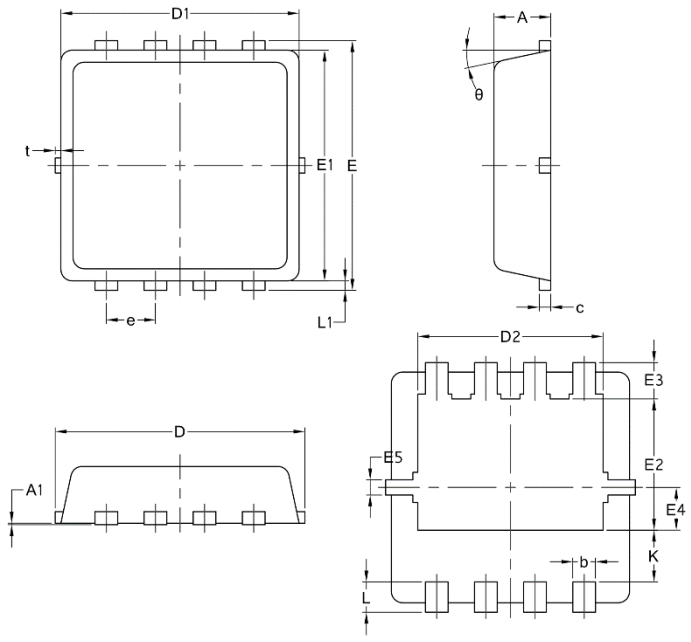


Fig.11 Gate Charge Waveform

Package Mechanical Data-DFN3*3-8L-JQ Single



Symbol	Common		
	mm		
	Mim	Nom	Max
A	0.70	0.75	0.85
A1	/	/	0.05
b	0.20	0.30	0.40
c	0.10	0.152	0.25
D	3.15	3.30	3.45
D1	3.00	3.15	3.25
D2	2.29	2.45	2.65
E	3.15	3.30	3.45
E1	2.90	3.05	3.20
E2	1.54	1.74	1.94
E3	0.28	0.48	0.65
E4	0.37	0.57	0.77
E5	0.10	0.20	0.30
e	0.60	0.65	0.70
K	0.59	0.69	0.89
L	0.30	0.40	0.50
L1	0.06	0.125	0.20
t	0	0.075	0.13
Φ	10	12	14