

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.

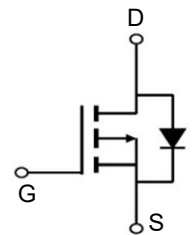
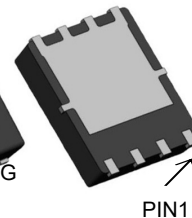


Features

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

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 ($T_J = 25^\circ\text{C}$ unless otherwise noted)

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

Electrical Characteristics (T_J=25 °C, 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	-	35	-	nC
Q _{gs}	Gate- Source Charge	V _{DS} =- 10V	-	5	-	nC
Q _{gd}	Gate-Drain ("Miller") Charge	V _{GS} =-4.5V	-	10	-	nC
td(on)	Turn-on Delay Time	V _{DS} =- 10V	-	12	-	ns
t _r	Rise Time	I _D =- 10A	-	40	-	ns
td(off)	Turn-off Delay Time	R _G =3.3Ω	-	30	-	ns
t _f	Fall Time	V _{GS} =- 4.5V	-	10	-	ns
C _{iss}	Input Capacitance	V _{GS} =0V	-	2000	-	pF
C _{oss}	Output Capacitance	V _{DS} =- 15V f=1.0MHz	-	690	-	pF
C _{rss}	Reverse Transfer Capacitance	I _S =-10A, V _{GS} =0V,	-	590	-	pF
t _{rr}	Reverse Recovery Time	dI/dt=100A/μs	-	27	-	ns
Q _{rr}	Reverse Recovery Charge		-	17.8	-	nC

Notes:

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

Typical Characteristics

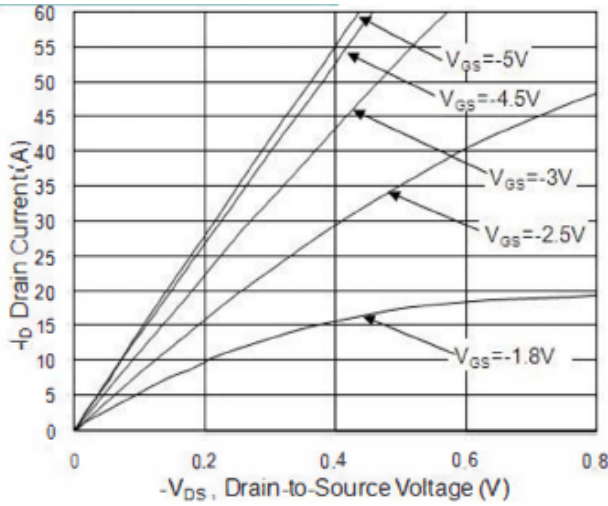


Fig.1 Typical Output Characteristics

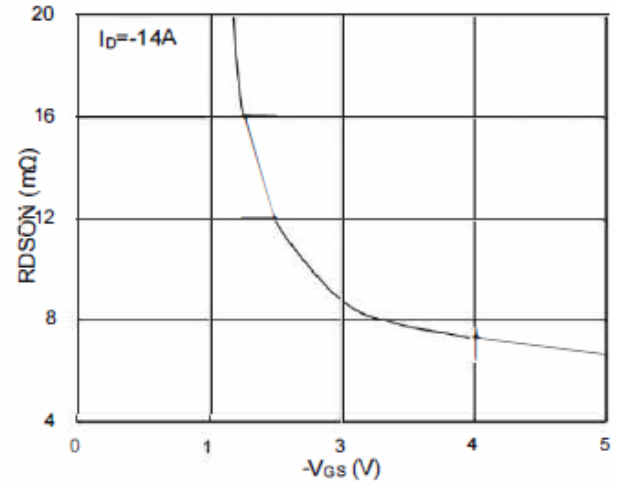


Fig.2 On-Resistance vs. G-S Voltage

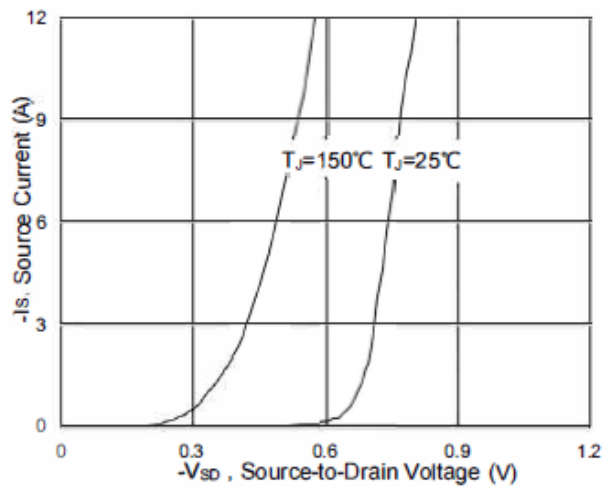


Fig.3 Forward Characteristics of Reverse

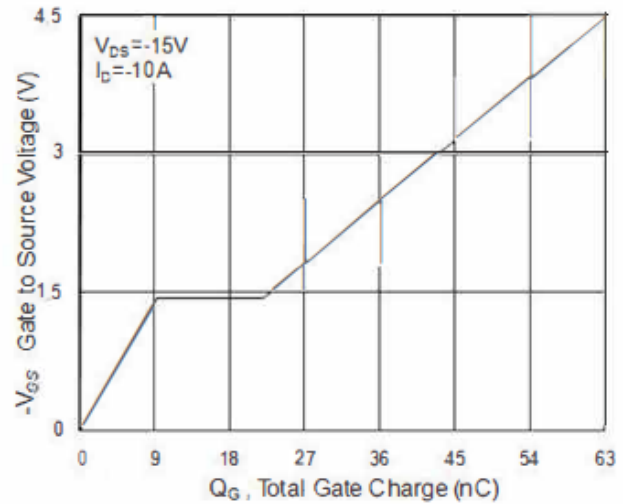
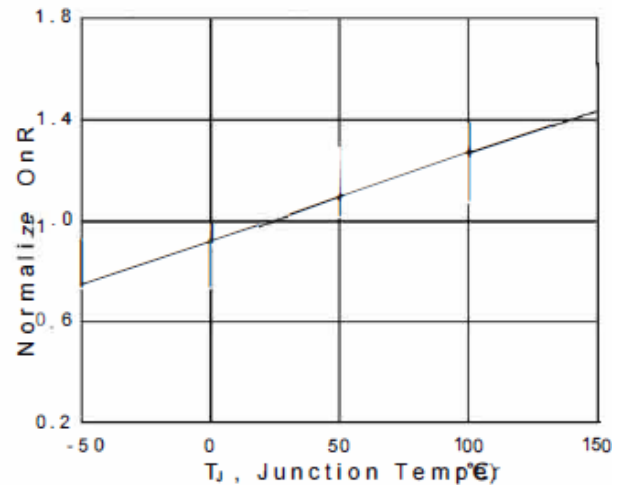
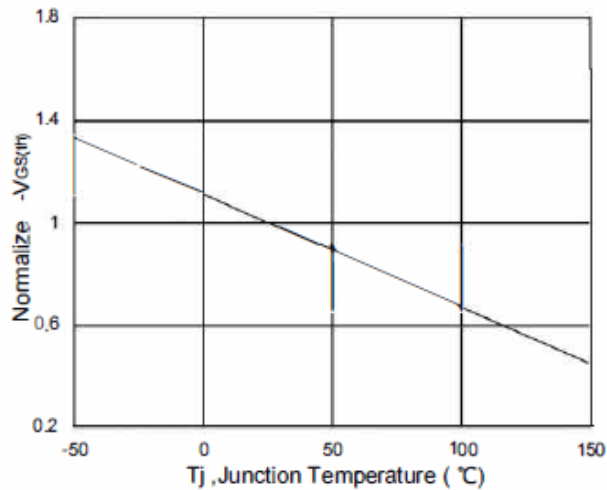


Fig.4 Gate-charge Characteristics



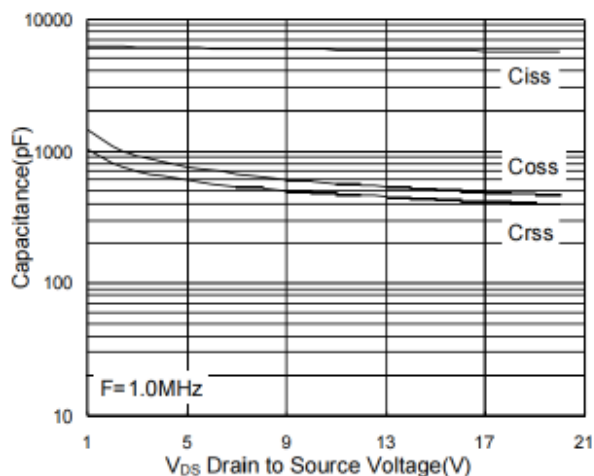


Fig.7 Capacitance

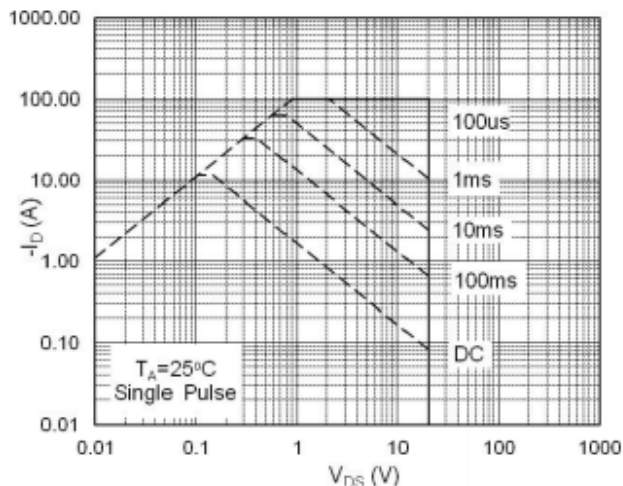


Fig.8 Safe Operating Area

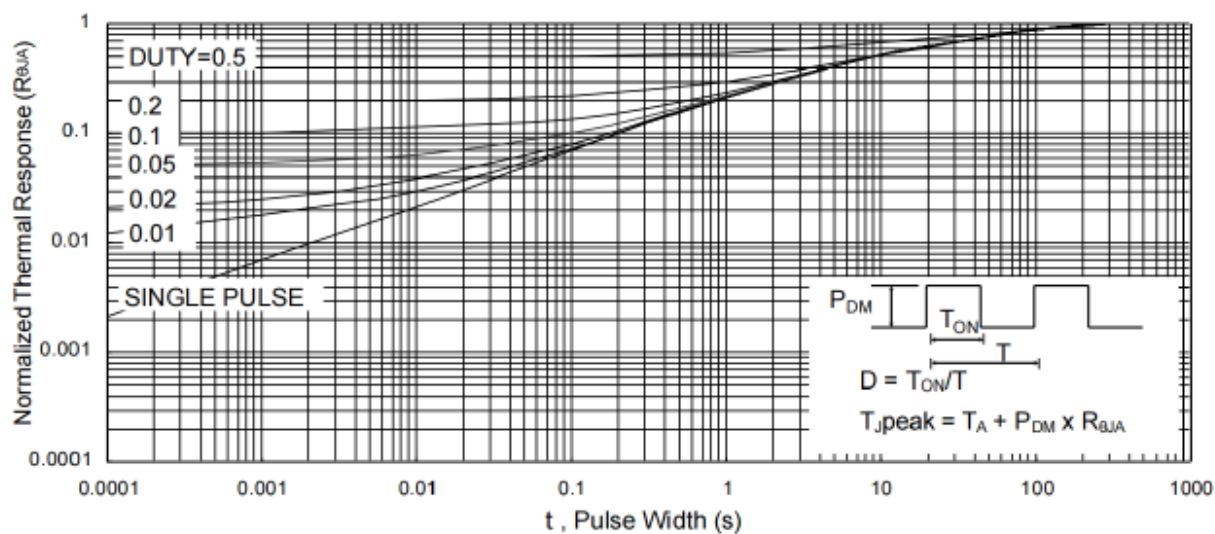


Fig.9 Normalized Maximum Transient Thermal Impedance

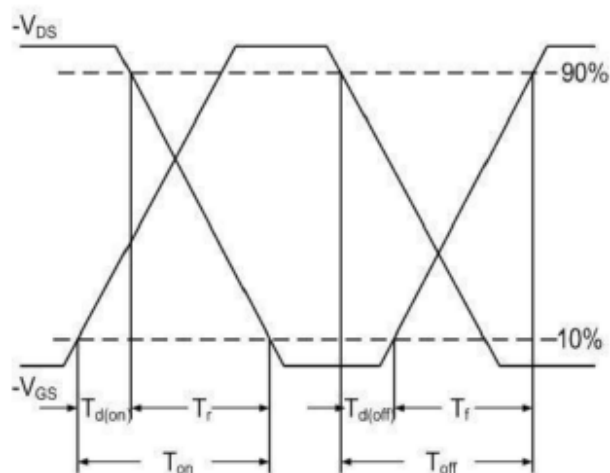


Fig.10 Switching Time Waveform

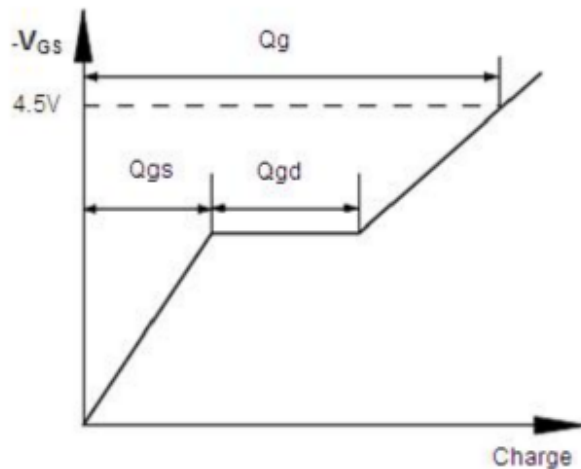
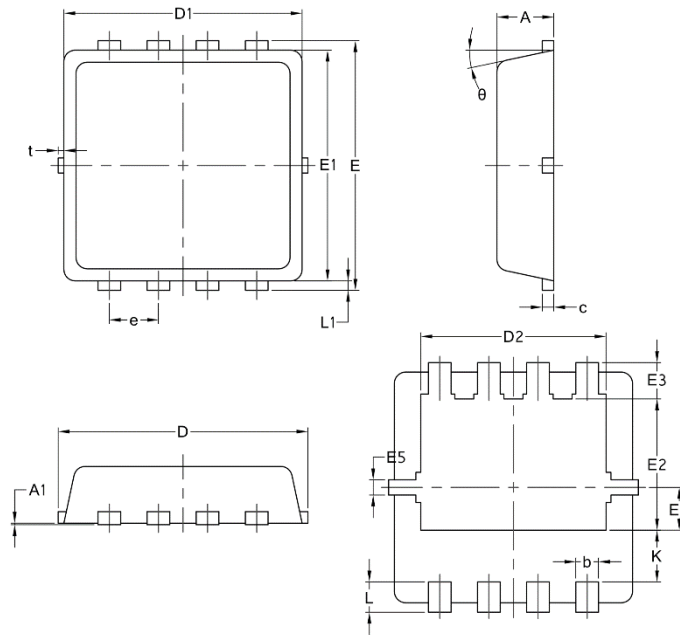


Fig.11 Gate Charge Waveform

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