

General Description

The MY30P06NE5 uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 4.5V. This device is suitable for use as a load switch or in PWM applications.

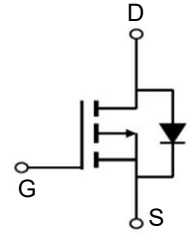
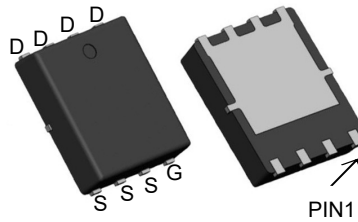


Features

V_{FV}	-60	X
V_{GS}	-30	C
$T_{FV}^{*QP} \#cXI U? -10X+$	31	o á
$T_{FV}^{*QP} \#cXI U? -4.5X+$	42	o á

Application

- PWM applications
- Load switch
- Power management



Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
MY30P06NE5	PDFN5*6-8L	MY30P06NE5	5000

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

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	-60	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous@ Current-Pulsed (Note 1)	$I_D(25^{\circ}C)$	-30	A
	$I_D(70^{\circ}C)$	-20	A
	IDM	-60	A
Maximum Power Dissipation	P_D	60	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 To 175	$^{\circ}C$
Thermal Resistance, Junction-to-Ambient (Note 2)	$R_{\theta JA}$	25	$^{\circ}C/W$

Electrical Characteristics (T_J=25 °C, unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V I _D =-250μA	-60			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-48V, V _{GS} =0V			-1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V			±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-1	-1.8	-2.5	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =-10V, I _D =-20A		31	40	mΩ
		V _{GS} =-4.5V, I _D =-20A		42	55	mΩ
Forward Transconductance	g _{FS}	V _{DS} =-5V, I _D =-20A	5			S
Input Capacitance	C _{iss}	V _{DS} =-30V, V _{GS} =0V, F=1.0MHz		3060		PF
Output Capacitance	C _{oss}			300		PF
Reverse Transfer Capacitance	C _{rss}			205		PF
Turn-on Delay Time	t _{d(on)}	V _{DS} =-30V, V _{GS} =-10V, R _{GEN} =3Ω I _D =1A		14		nS
Turn-on Rise Time	t _r			20		nS
Turn-Off Delay Time	t _{d(off)}			40		nS
Turn-Off Fall Time	t _f			19		nS
Total Gate Charge	Q _g				48	
Gate-Source Charge	Q _{gs}	V _{DS} =-30V, I _D =-20A, V _{GS} =-10V		11		nC
Gate-Drain Charge	Q _{gd}			10		nC
Body Diode Reverse Recovery Time	T _{rr}		I _F =-20A, dI/dt=100A/μs		40	
Body Diode Reverse Recovery Charge	Q _{rr}			56		nC
Diode Forward Voltage (Note 3)	V _{SD}	V _{GS} =0V, I _S =-1A		-0.72	-1	V

NOTES:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on 1in² FR4 Board, t ≤ 10 sec.
3. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production testing.

Typical Characteristics

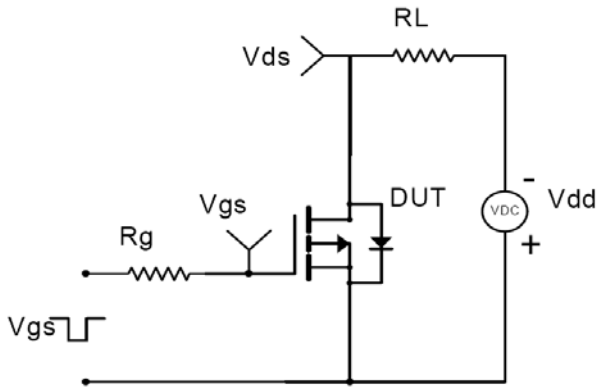


Figure 1: Switching Test Circuit

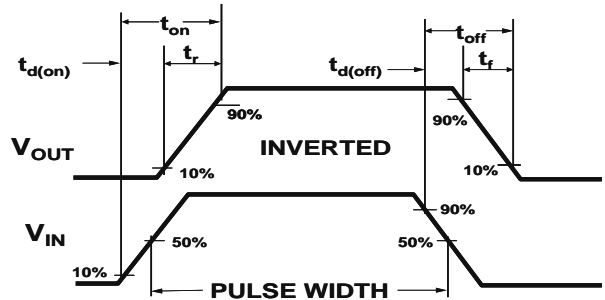


Figure 2: Switching Waveforms

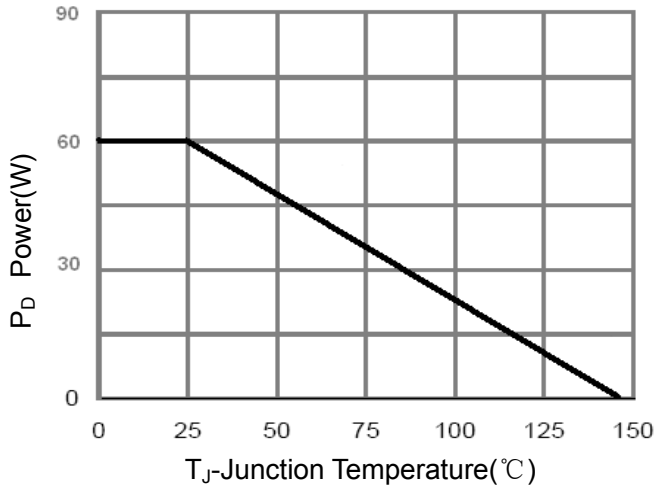


Figure 3 Power Dissipation

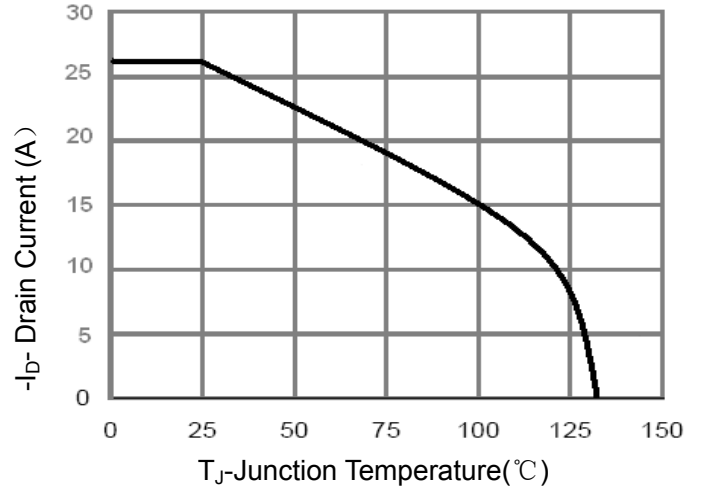


Figure 4 Drain Current

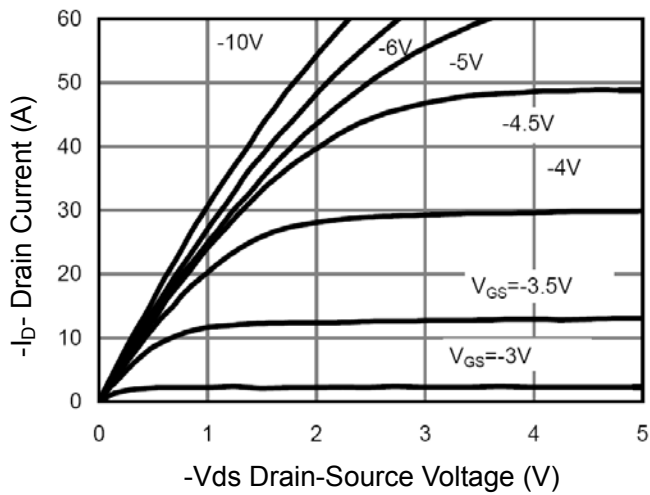


Figure 5 Output CHARACTERISTICS

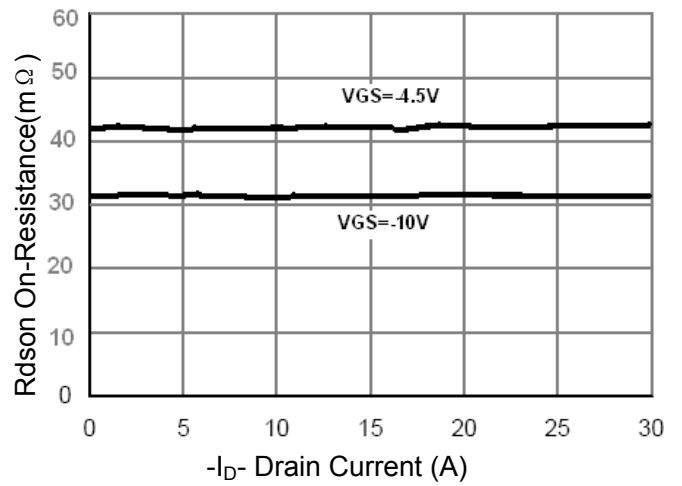


Figure 6 Drain-Source On-Resistance

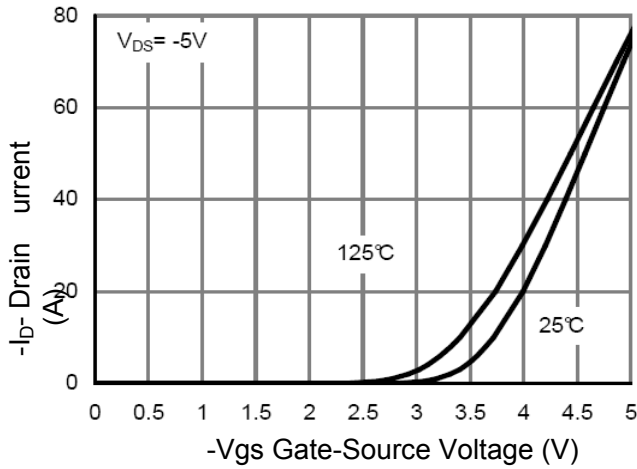


Figure 7 Transfer Characteristics

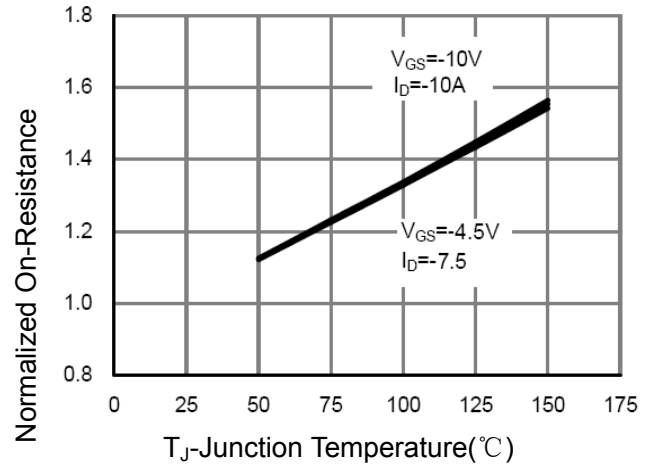


Figure 8 Drain-Source On-Resistance

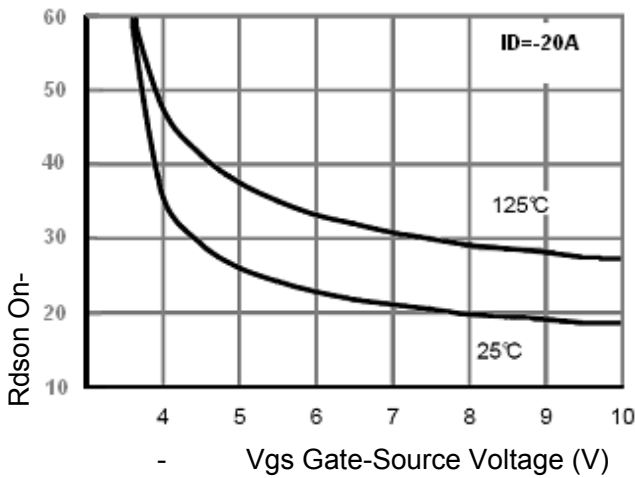


Figure 9 Rdson vs Vgs

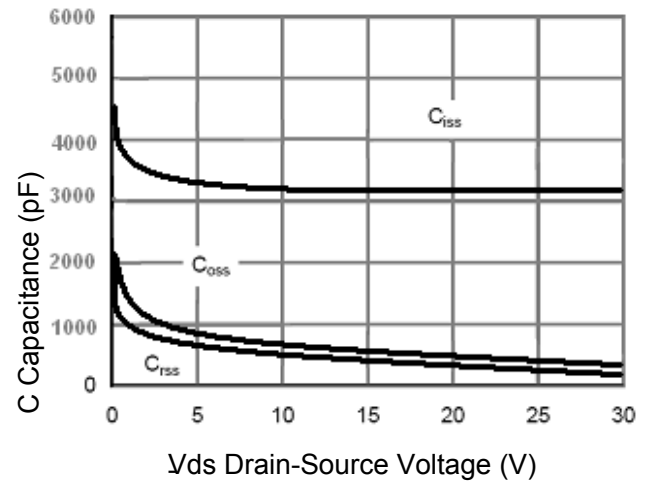


Figure 10 Capacitance vs Vds

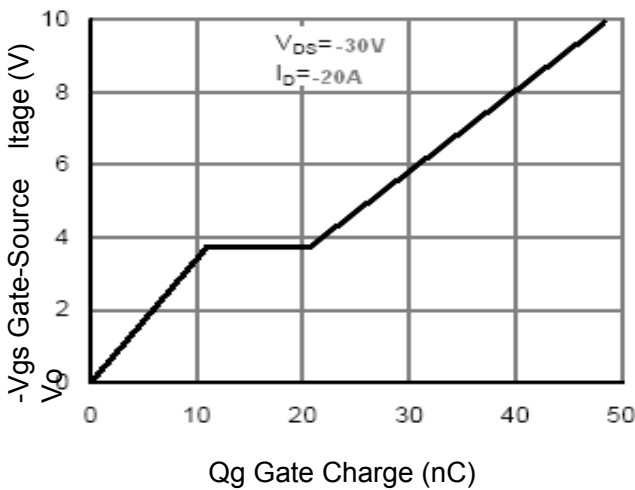


Figure 11 Gate Charge

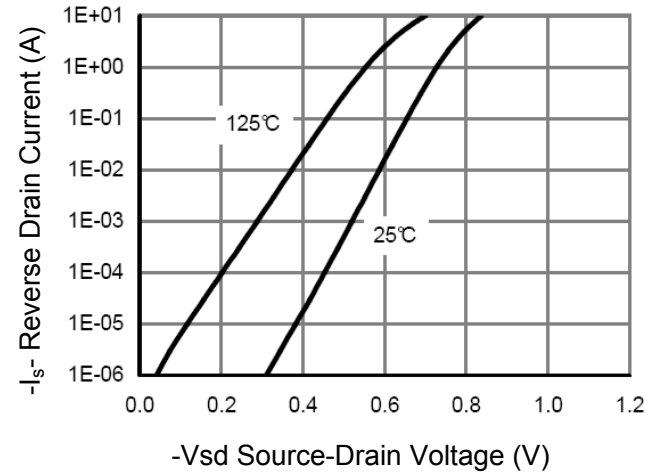


Figure 12 Source- Drain Diode Forward

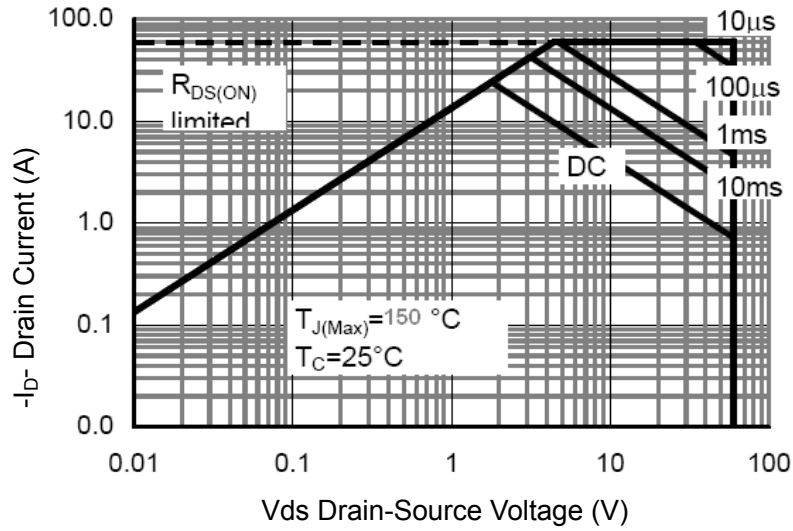


Figure 13 Safe Operation Area

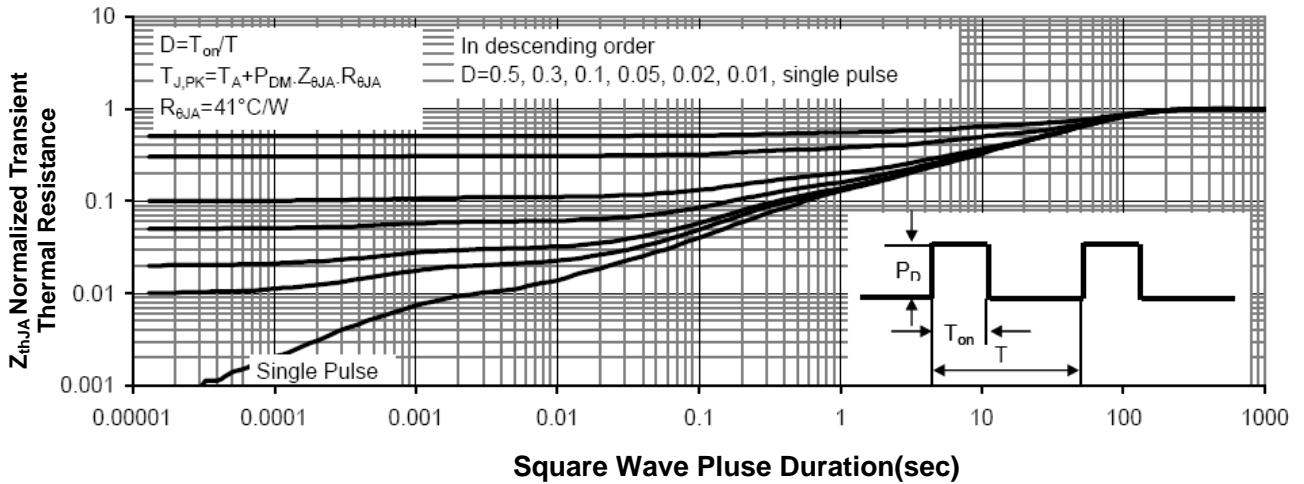
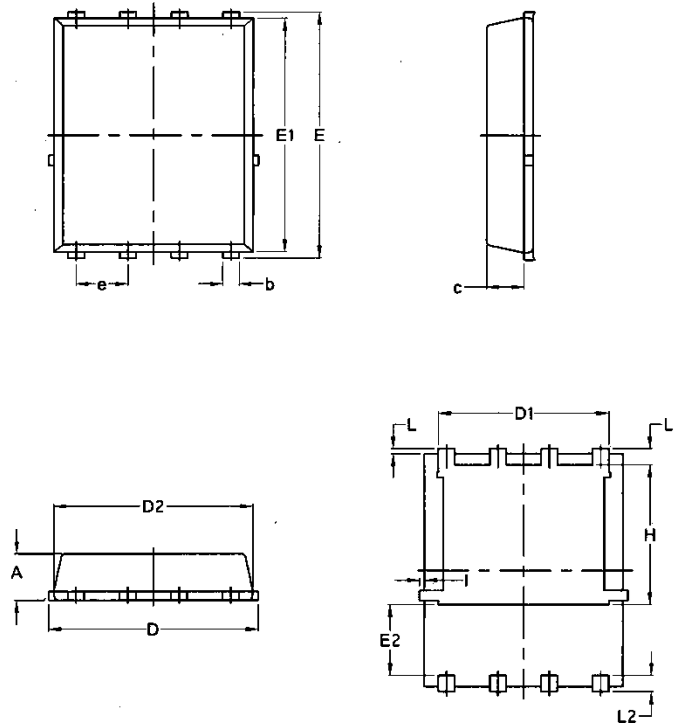


Figure 14 Normalized Maximum Transient Thermal Impedance

Package Mechanical Data-DFN5*6-8L-JQ Single



Symbol	Common			
	mm		Inch	
	Min	Max	Min	Max
A	1.03	1.17	0.0406	0.0461
b	0.34	0.48	0.0134	0.0189
c	0.824	0.0970	0.0324	0.082
D	4.80	5.40	0.1890	0.2126
D1	4.11	4.31	0.1618	0.1697
D2	4.80	5.00	0.1890	0.1969
E	5.95	6.15	0.2343	0.2421
E1	5.65	5.85	0.2224	0.2303
E2	1.60	/	0.0630	/
e	1.27 BSC		0.05 BSC	
L	0.05	0.25	0.0020	0.0098
L1	0.38	0.50	0.0150	0.0197
L2	0.38	0.50	0.0150	0.0197
H	3.30	3.50	0.1299	0.1378
I	/	0.18	/	0.0070