



Product Summary

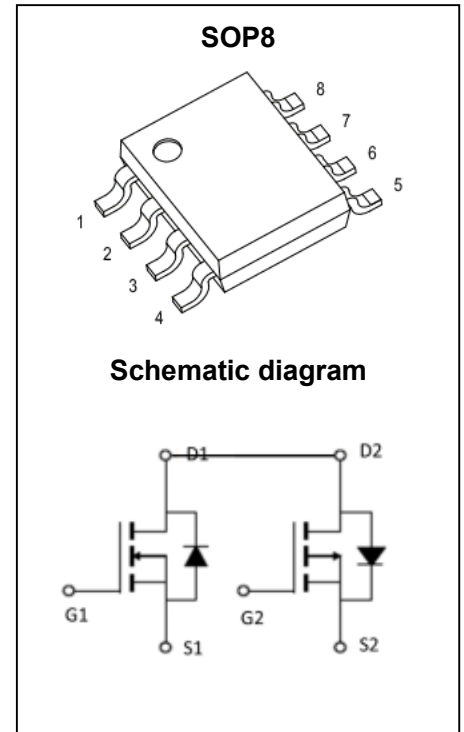
$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
30V	20mΩ@10V	6A
	27mΩ@4.5V	
-30V	27mΩ@-10V	-6A
	39mΩ@-4.5V	

Feature

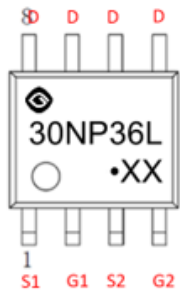
- Trench Technology Power MOSFET
- Low $R_{DS(ON)}$
- Low Gate Charge
- Low Gate Resistance

Application

- PWM Applications
- Loas Switch
- Power Management



MARKING:



800NP06L = Device Code
 XX = Data Code
 Solid Dot = Green Device Indicator

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	NMOS	PMOS	Unit
Drain - Source Voltage	V_{DS}	30	-30	V
Gate - Source Voltage	V_{GS}	± 20	± 20	V
Continuous Drain Current ^{1,5}	I_D	6	-6	A
$T_A = 25^\circ\text{C}$				
Pulsed Drain Current ²	I_{DM}	24	-24	A
Single Pulsed Avalanche Current ^{3,4}	I_{AS}	9.5	14	A
Single Pulsed Avalanche Energy ^{3,4}	E_{AS}	22.5	49	mJ
Power Dissipation ^{4,5}	P_D	1.25	1.25	W
Thermal Resistance from Junction to Ambient ⁵	$R_{\theta JA}$	100	100	$^\circ\text{C/W}$
Junction Temperature	T_J	150	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55~ +150	-55~ +150	$^\circ\text{C}$

MOSFET ELECTRICAL CHARACTERISTICS ($T_J = 25^\circ\text{C}$ unless otherwise noted)
NMOS:

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain - Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	30			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 30V, V_{GS} = 0V$			1	μA
Gate - Body Leakage Current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 100	nA
On Characteristics³						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1	1.5	2.5	V
Drain-source On-resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 5A$		20	30	m Ω
		$V_{GS} = 4.5V, I_D = 3A$		27	42	
Forward transconductance	g_{FS}	$V_{DS} = 5V, I_D = 6A$		15		S
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS} = 15V, V_{GS} = 0V, f = 1MHz$		474		pF
Output Capacitance	C_{oss}			62		
Reverse Transfer Capacitance	C_{rss}			46.7		
Gate Resistance	R_g	$V_{DS} = 0V, V_{GS} = 0V, f = 1MHz$		2.8		Ω
Switching Characteristics						
Total Gate Charge	Q_g	$V_{DS} = 15V, V_{GS} = 10V, I_D = 5A$		10		pC
Gate-source Charge	Q_{gs}			5		
Gate-drain Charge	Q_{gd}			2.8		
Turn-on Delay Time	$t_{d(on)}$	$V_{DD} = 15V, V_{GS} = 10V, R_L = 3\Omega$ $R_G = 3\Omega$		5.7		ns
Turn-on Rise Time	t_r			3.6		
Turn-off Delay Time	$t_{d(off)}$			21		
Turn-off Fall Time	t_f			4.2		
Source - Drain Diode Characteristics						
Diode Forward Voltage ³	V_{SD}	$V_{GS} = 0V, I_S = 3A$	0.5		1.2	V

PMOS:

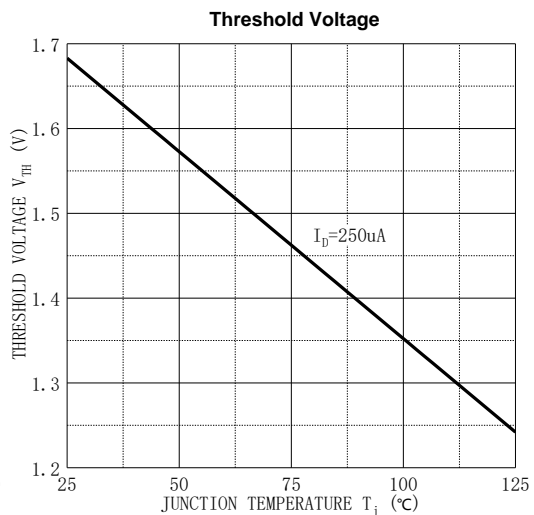
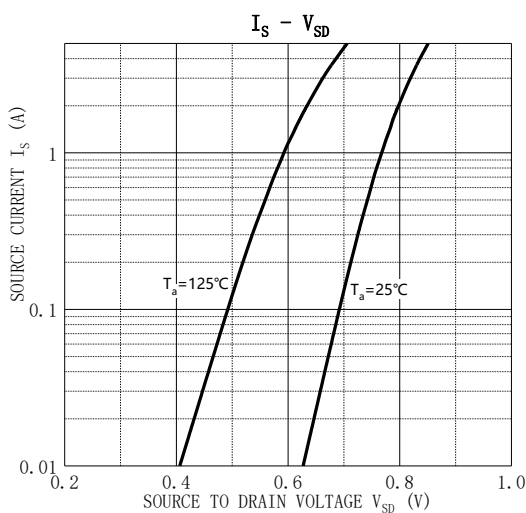
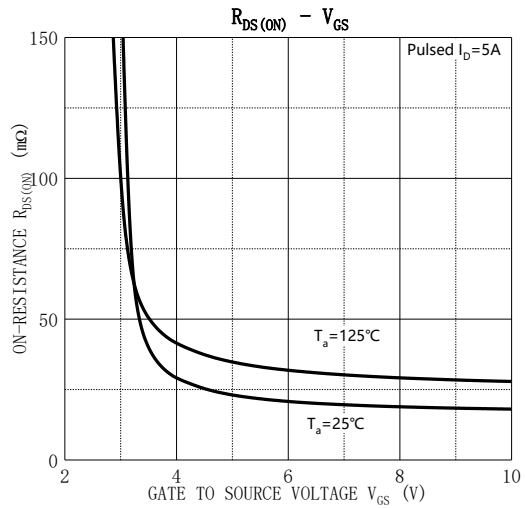
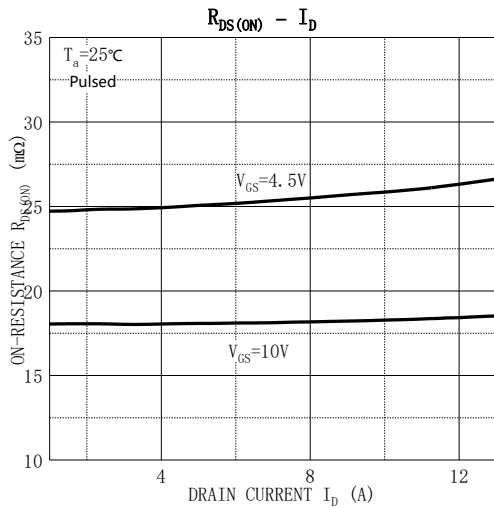
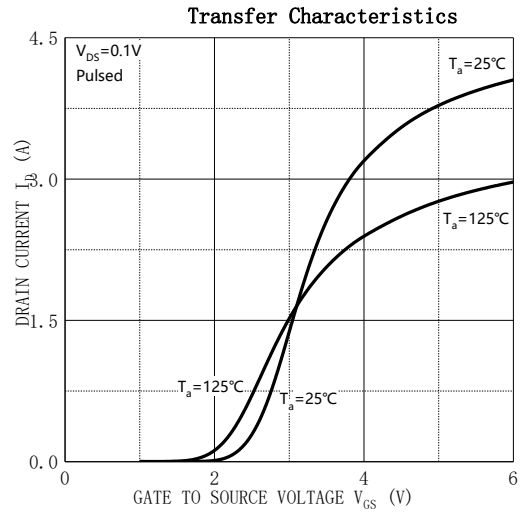
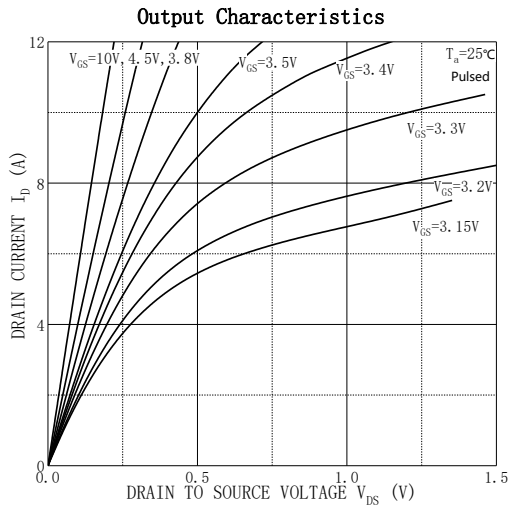
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain - Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-30			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -30V, V_{GS} = 0V$			-1	μA
Gate - Body Leakage Current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 100	nA
On Characteristics³						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-1	-1.7	-2.5	V
Drain-source On-resistance	$R_{DS(on)}$	$V_{GS} = -10V, I_D = -3.1A$		27	35	m Ω
		$V_{GS} = -4.5V, I_D = -2.0A$		39	55	
Forward transconductance	g_{FS}	$V_{DS} = -10V, I_D = -20A$		14		S
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS} = -15V, V_{GS} = 0V, f = 1MHz$		915		pF
Output Capacitance	C_{oss}			102		
Reverse Transfer Capacitance	C_{rss}			88		
Gate Resistance	R_g	$V_{DS} = 0V, V_{GS} = 0V, f = 1MHz$		24		Ω
Switching Characteristics						
Total Gate Charge	Q_g	$V_{DS} = -15V, V_{GS} = -10V, I_D = -5A$		18		pC
Gate-source Charge	Q_{gs}			3		
Gate-drain Charge	Q_{gd}			3		
Turn-on Delay Time	$t_{d(on)}$	$V_{DD} = -15V, V_{GS} = -10V, R_L = 15\Omega$ $R_G = 1\Omega$			18	ns
Turn-on Rise Time	t_r				18	
Turn-off Delay Time	$t_{d(off)}$				84	
Turn-off Fall Time	t_f				30	
Source - Drain Diode Characteristics						
Diode Forward Voltage ³	V_{SD}	$V_{GS} = 0V, I_S = -10A$	-0.5		-1.2	V

Notes :

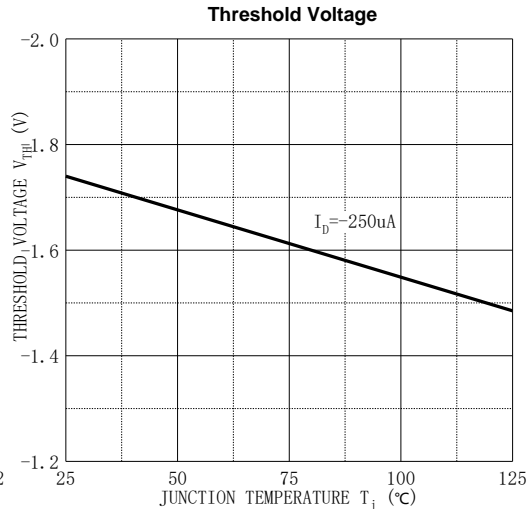
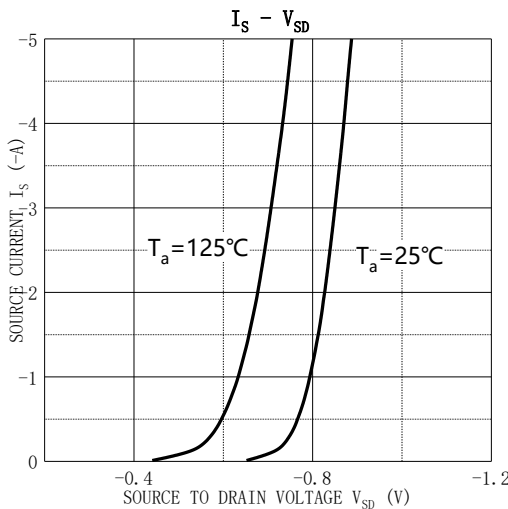
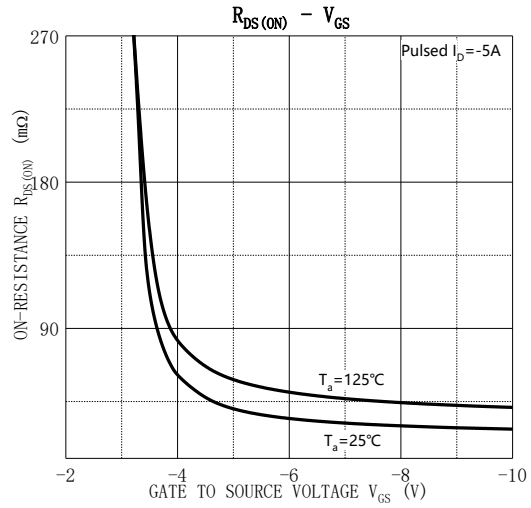
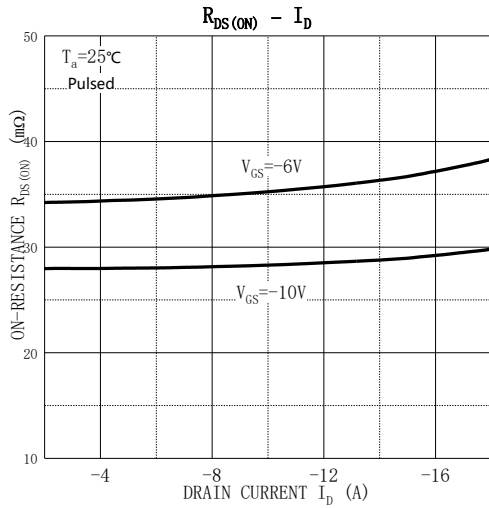
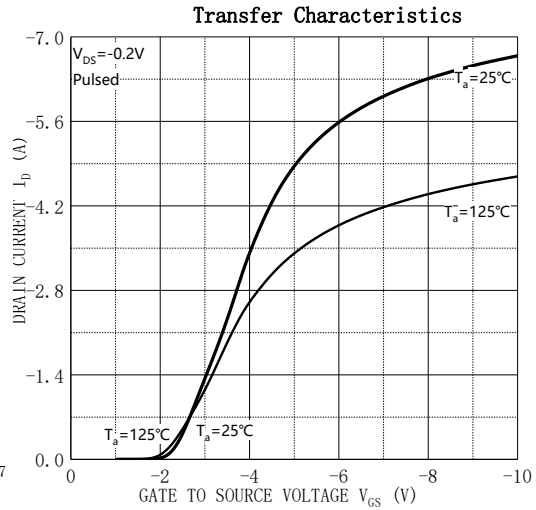
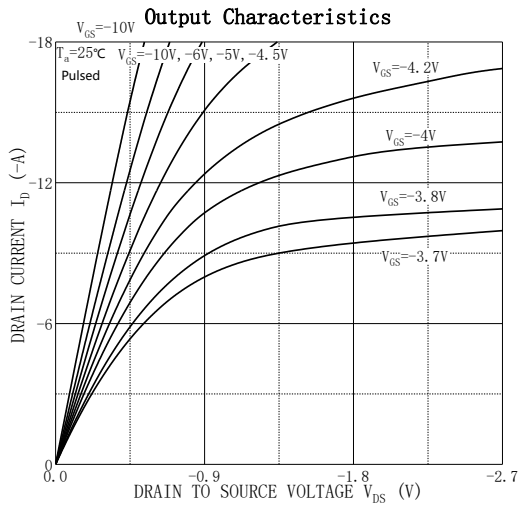
- 1.The maximum current rating is limited by package.And device mounted on a large heatsink
- 2.Pulse Test : Pulse Width $\leq 10\mu s$, duty cycle $\leq 1\%$.
- 3.EAS condition: $V_{DD} = 15V, V_{GS} = 10V, L = 0.5mH, R_G = 25\Omega$ Starting $T_J = 25^\circ C$.
- 4.EAS condition: $V_{DD} = -15V, V_{GS} = -10V, L = 0.5mH, R_G = 25\Omega$ Starting $T_J = 25^\circ C$.
- 5.Pulse Test : Pulse Width $\leq 300\mu s$, duty cycle $\leq 2\%$.
- 6.The power dissipation P_D is limited by $T_{J(MAX)} = 150^\circ C$.And device mounted on a large heatsink
- 7.Device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^\circ C$.

Typical Characteristics

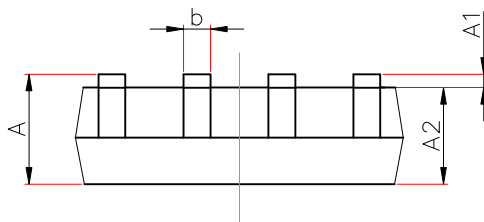
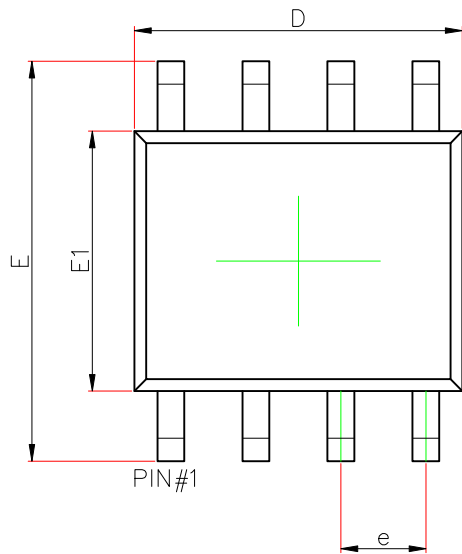
NMOS:



PMOS:



SOP8 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.156	0.250	0.006	0.010
D	4.700	5.100	0.185	0.201
e	1.270(BSC)		0.050(BSC)	
E	5.800	6.200	0.228	0.244
E1	3.700	4.100	0.146	0.161
L	0.400	1.270	0.016	0.05
θ	0°	8°	0°	8°