
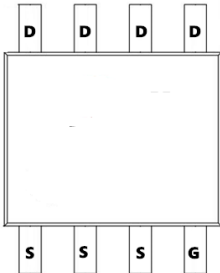


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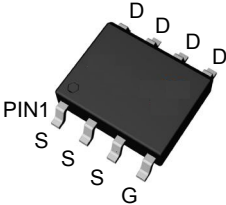
N-Channel Enhancement Mosfet

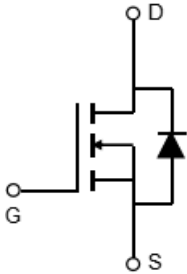
<p>General Description</p> <ul style="list-style-type: none"> • Low R_{DS(ON)} • RoHS and Halogen-Free Compliant <p>Applications</p> <ul style="list-style-type: none"> • Load switch • PWM 	<p>General Features</p> <p>V_{DS} = 60V I_D = 18A</p> <p>R_{DS(ON)} = 18 mΩ (typ.) @ V_{GS} = 10V</p> <p>100% UIS Tested 100% R_g Tested</p> <div style="text-align: right;">  </div>
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PIN1
Marking: 18N06

S:SOP-8L





Absolute Maximum Ratings: (T_A=25°C unless otherwise noted)

Symbol	Parameter	Ratings	Units
V _{DS}	Drain-Source Voltage	60	V
V _{GS}	Gate-Source Voltage	±20	V
I _D	Continuous Drain Current- T _A =25°C	18	A
	Continuous Drain Current- T _A =100°C	5.6	
I _{DM}	Drain Current-Pulsed ¹	32	A
P _D	Power Dissipation	2.1	W
T _J , T _{STG}	Operating and Storage Junction Temperature Range	-55 to +150	°C

Thermal Characteristics:

Symbol	Parameter	Max	Units
R _{θJA}	Thermal Resistance, Junction to Ambient	60	°C/W



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Electrical Characteristics: ($T_A=25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\ \mu A$	60	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{GS}=0V, V_{DS}=60V, T_C=25^\circ\text{C}$	---	---	1	μA
		$V_{GS}=0V, V_{DS}=60V, T_C=125^\circ\text{C}$	---	---	100	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0A$	---	---	± 100	nA
On Characteristics						
$V_{GS(th)}$	GATE-Source Threshold Voltage	$V_{GS}=V_{DS}, I_D=250\ \mu A$	1.2	1.8	2.5	V
$R_{DS(on)}$	Drain-Source On Resistance ²	$V_{GS}=10V, I_D=8A$	---	18	23	m Ω
		$V_{GS}=4.5V, I_D=4A$	---	22	27	
Dynamic Characteristics						
C_{iss}	Input Capacitance ⁴	$V_{DS}=30V, V_{GS}=0V, f=1\text{MHz}$	---	1888	---	pF
C_{oss}	Output Capacitance ⁴		---	112	---	
C_{rss}	Reverse Transfer Capacitance ⁴		---	91	---	
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time ^{2,3}	$V_{DD}=30V, I_D=20A$ $R_G=3\ \Omega, V_{GS}=10V$	---	6.7	---	ns
t_r	Rise Time ^{2,3}		---	3.3	---	ns
$t_{d(off)}$	Turn-Off Delay Time ^{2,3}		---	21	---	ns
t_f	Fall Time ^{2,3}		---	6.2	---	ns
Q_g	Total Gate Charge	$V_{GS}=10V, V_{DS}=30V,$ $I_D=20A$	---	39	---	nC
Q_{gs}	Gate-Source Charge		---	7.7	---	nC
Q_{gd}	Gate-Drain "Miller" Charge		---	8.3	---	nC
Drain-Source Diode Characteristics						
V_{SD}	Diode Forward Voltage ³	$V_{GS}=0V, I_S=20A, T_J=25^\circ\text{C}$	---	---	1.2	V
I_S	Source drain current(Body Diode)	$V_D=V_G=0V$	---	---	18	A
T_{rr}	Reverse Recovery Time	$I_F=20A, di_F/dt=100A/\mu s$	---	29	---	nS
Q_{rr}	Reverse Recovery Charge		---	21	---	nC

Notes :

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

Typical Characteristics: ($T_A=25^\circ\text{C}$ unless otherwise noted)

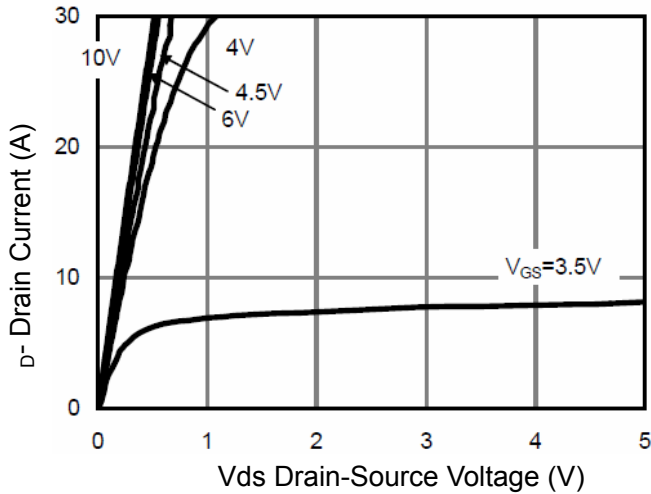


Figure 1 Output Characteristics

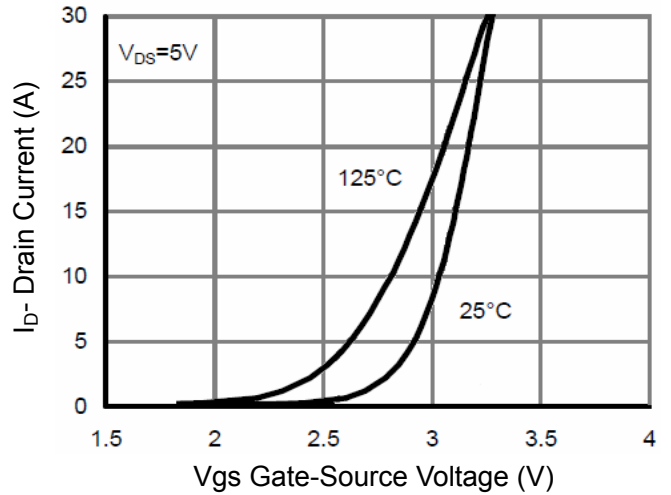


Figure 2 Transfer Characteristics

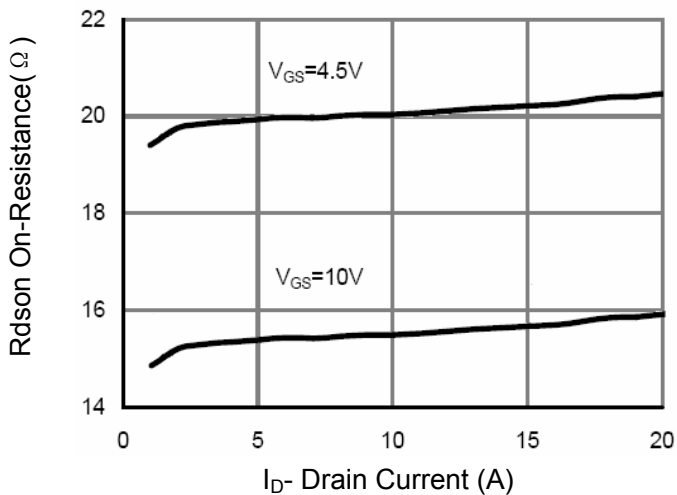


Figure 3 Rdson- Drain Current

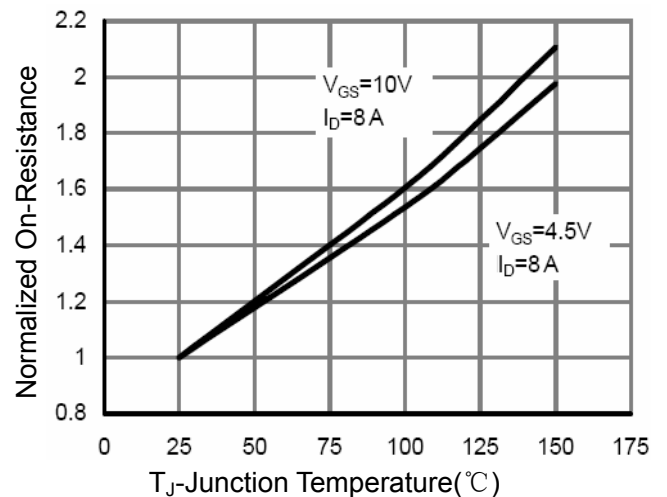


Figure 4 Rdson-Junction Temperature

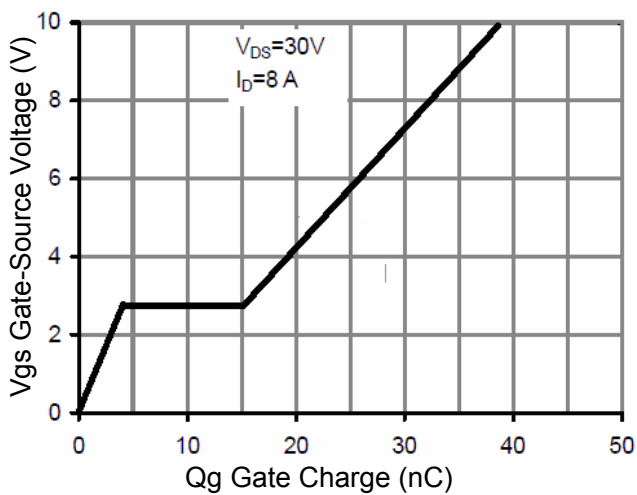


Figure 5 Gate Charge

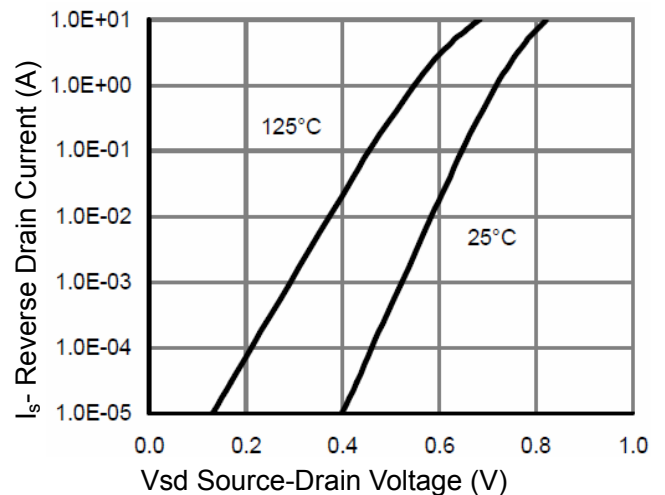


Figure 6 Source- Drain Diode Forward



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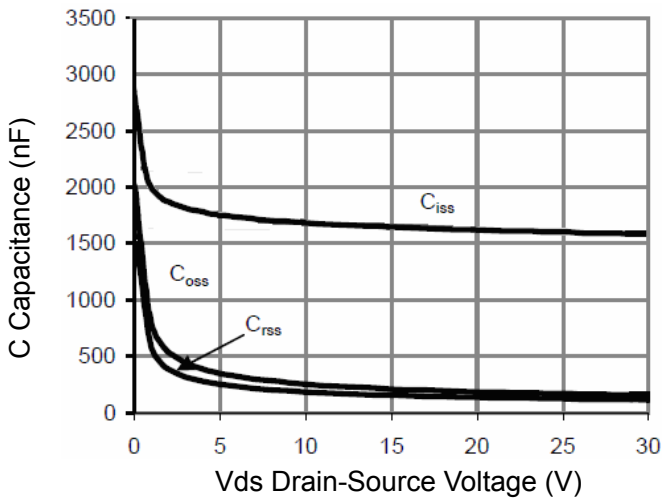


Figure 7 Capacitance vs Vds

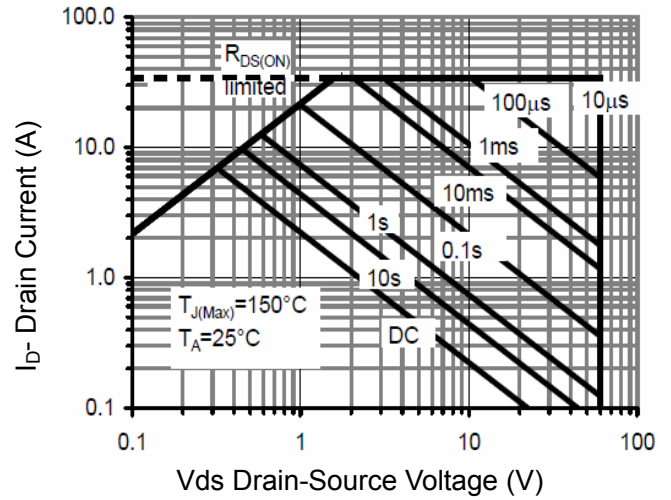


Figure 8 Safe Operation Area

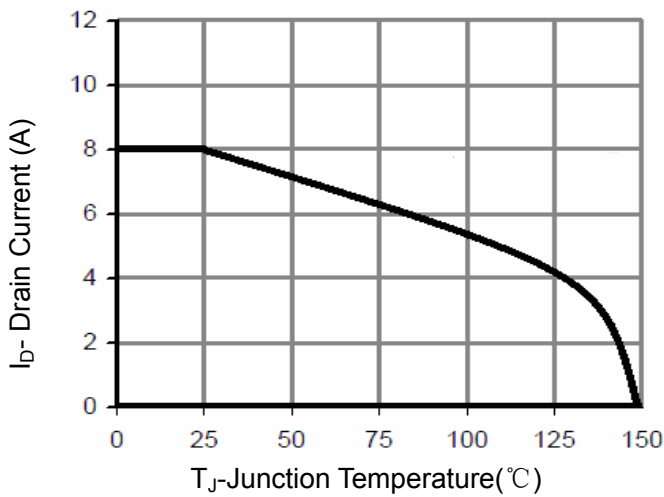


Figure 9 Current De-rating

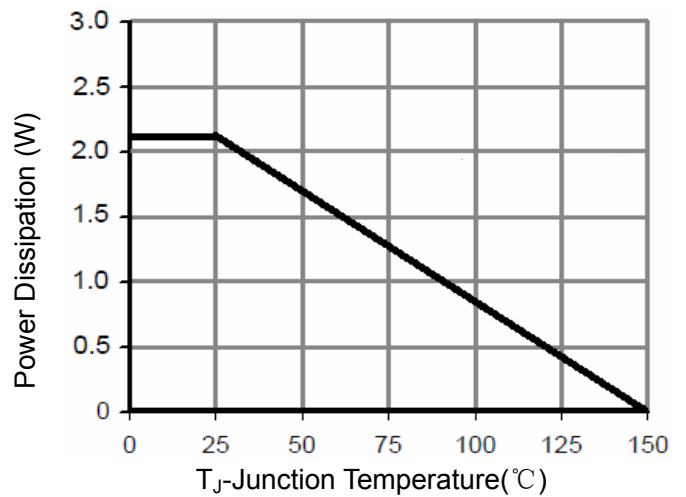


Figure 10 Power De-rating

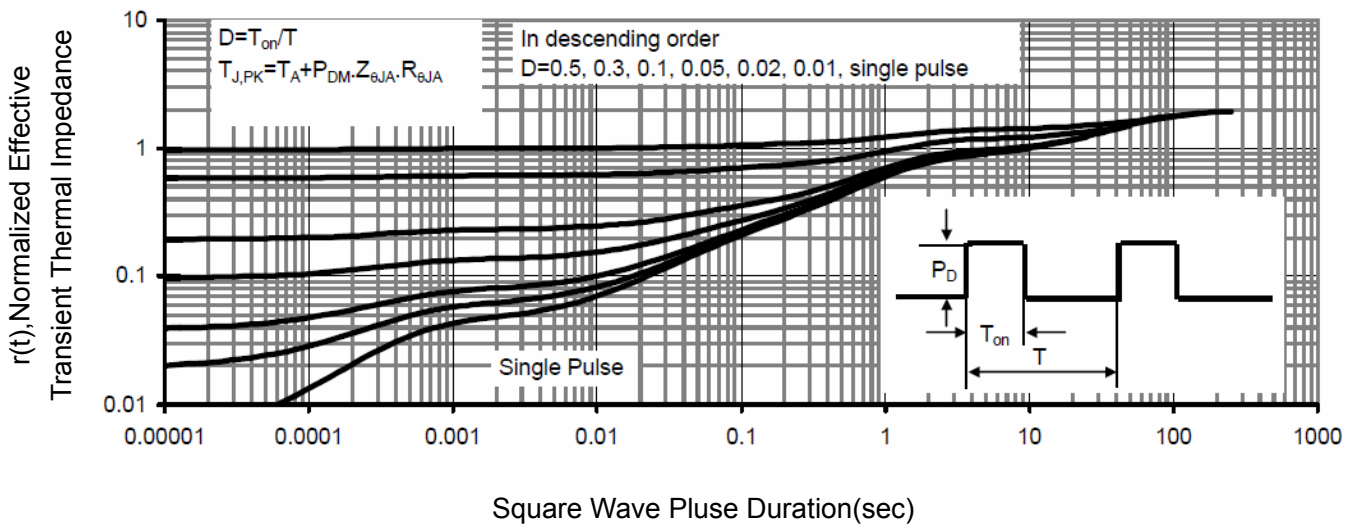
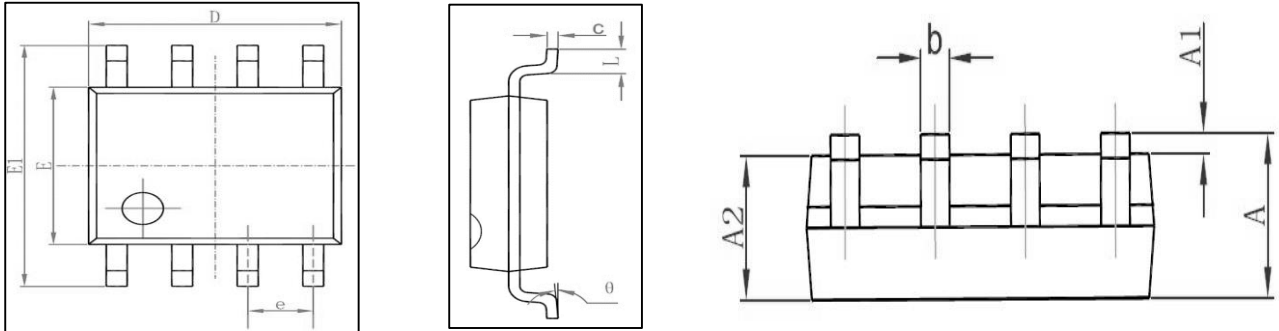
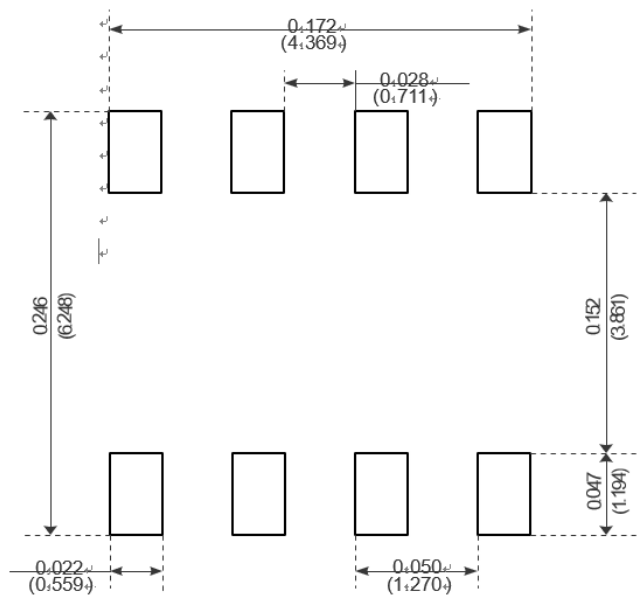


Figure 11 Normalized Maximum Transient Thermal Impedance

Package Mechanical Data:SOP-8L



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	0.170	0.250	0.006	0.010
D	4.700	5.100	0.185	0.200
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270 (BSC)		0.050 (BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°



Recommended Minimum Pads