Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
60V	30mΩ@10V	5A
	40mΩ@4.5V	

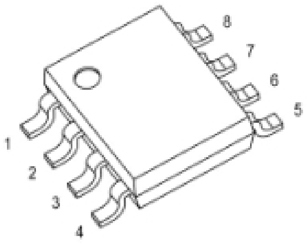
Feature

- N-Channel
- Enhancement mode
- Very low on-resistance RDS(on)
- Fast Switching

Applications

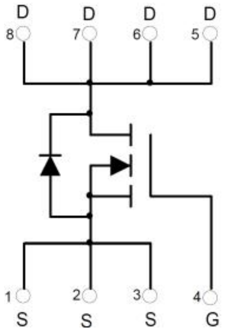
- Power switching application
- Load switch

Package

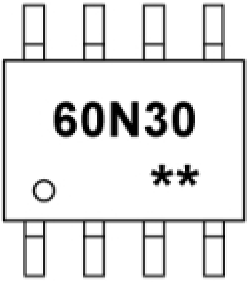


SOP-8L

Circuit diagram



Marking



60N30	**=Device Code**
**	**=Week code.**

Absolute maximum ratings

(T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	V
Drain Current-Continuous	I_D	5	A
Pulsed Drain Current	I_{DM}	20	A
Maximum Power Dissipation	P_D	2.1	W
Thermal Resistance,Junction-to-Ambient	$R_{\theta JA}$	59..5	°C/W
Operating Junction and Storage Temperature Range	$T_{STG,,}$ T_J	-55 To 175	°C

Electrical characteristics

(T_A=25℃, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$BV_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	60			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} =60V, V_{GS} = 0V			1	uA
Gate-Body Leakage Current	I_{GSS}	V_{GS} =±20V, V_{DS} = 0V			±100	uA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	1.2	1.6	2.5	V
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =6A		30	40	mΩ
		V_{GS} =4.5V, I_D =4A		40	50	
Dynamic Characteristics (4)						
Input capacitance	C_{iss}	V_{DS}=30V, V_{GS}=0V, f=1MHz		1090		pF
Output capacitance	C_{oss}			70		
Reverse transfer capacitance	C_{rss}			64		
Total Gate Charge	Q_g	V_{DS}=30V, V_{GS}=10V, I_D =10A		25.3		pF
Gate-Source Charge	Q_{gs}			4.7		
Gate-Drain Charge	Q_{gd}			6.1		
Switching Characteristics(4)						
Turn-on Delay Time	$T_{d(on)}$	V_{DD}=30V, I_D =2A, V_{GS}=10V, R_G =3Ω		6		nS
Turn-on Rise Time	T_r			6.1		
Turn-Off Delay Time	$T_{d(off)}$			17		
Turn-Off Fall Time	t_f			3		
Drain-Source Body Diode Characteristics						
Diode Forward Voltage (3)	V_{SD}	V_{GS}=0V ,I_S=1A			1.2	V
Diode Forward Current (2)	I_S				20	A
Reverse Recovery Time	t_{rr}	T_J = 25°C, I_F =20A di/dt = 100A/μs(3)		29.5		nS
Reverse Recovery Charge	Q_{rr}			50		nC

Typical Characteristics

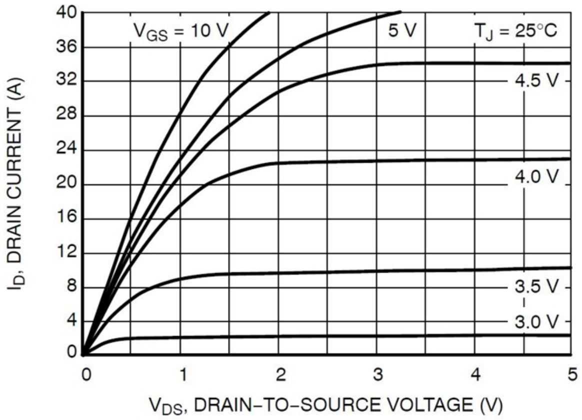


Figure 1. On−Region Characteristics

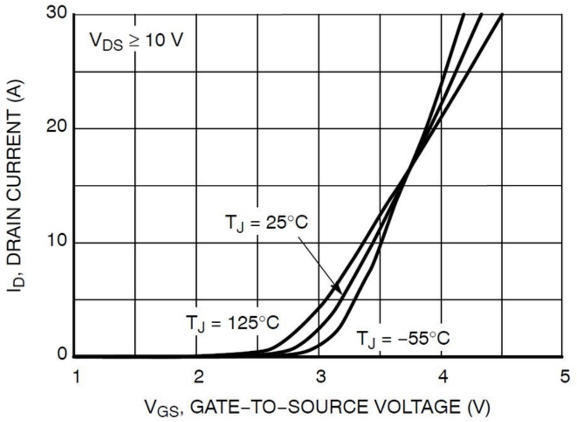


Figure 2. Transfer Characteristics

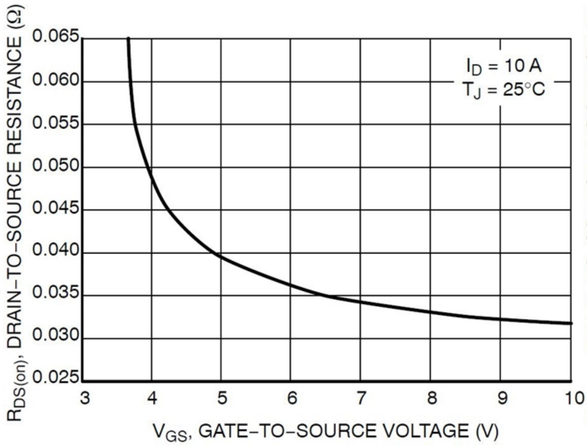


Figure 3. On−Resistance vs. Gate−to−Source Voltage

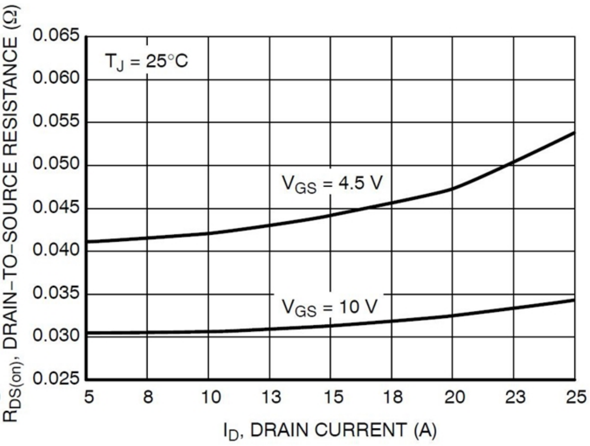


Figure 4. On−Resistance vs. Drain Current and Gate Voltage

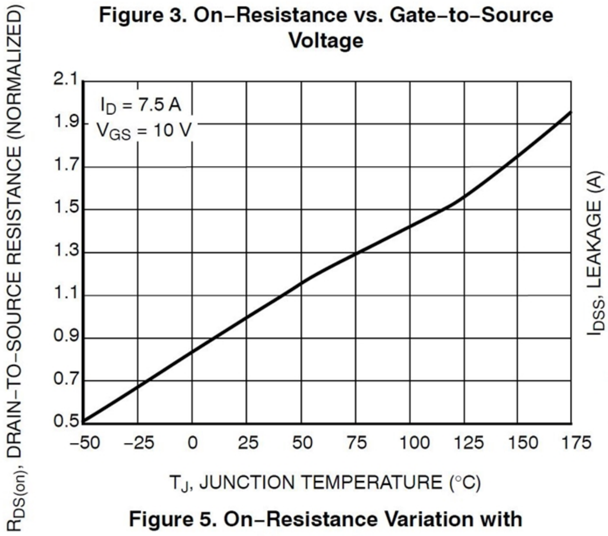


Figure 5. On−Resistance Variation with Temperature

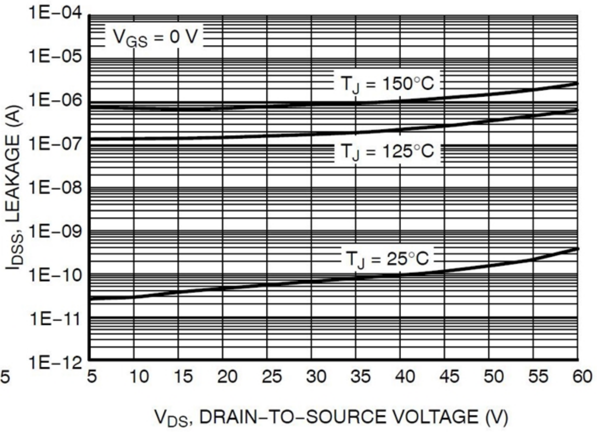


Figure 6. Drain−to−Source Leakage Current vs. Voltage

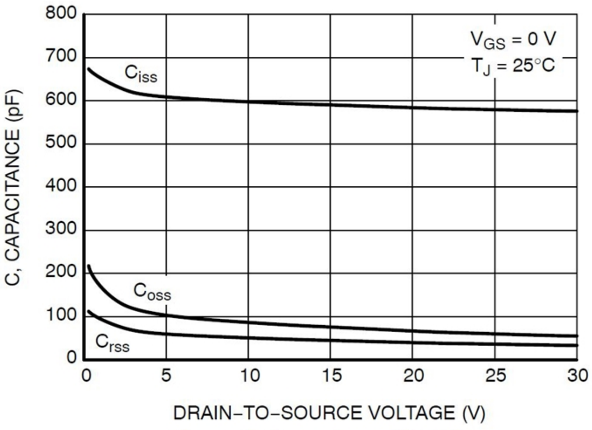


Figure 7. Capacitance Variation

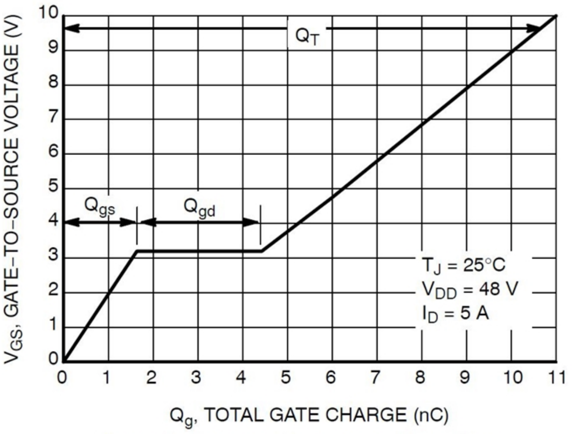


Figure 8. Gate−to−Source vs. Gate Charge

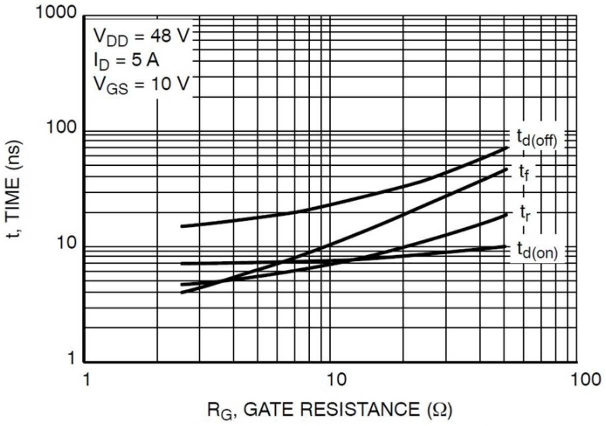


Figure 9. Resistive Switching Time Variation vs. Gate Resistance

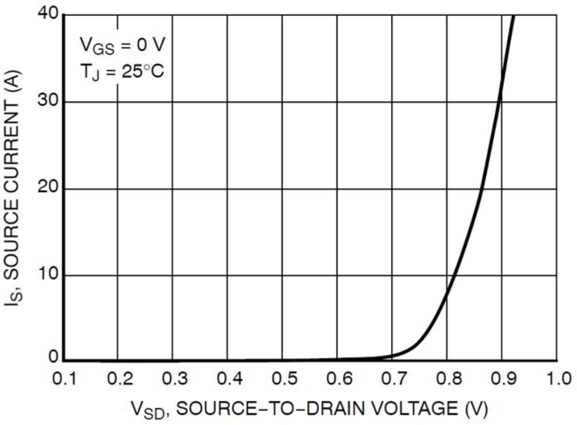


Figure 10. Diode Forward Voltage

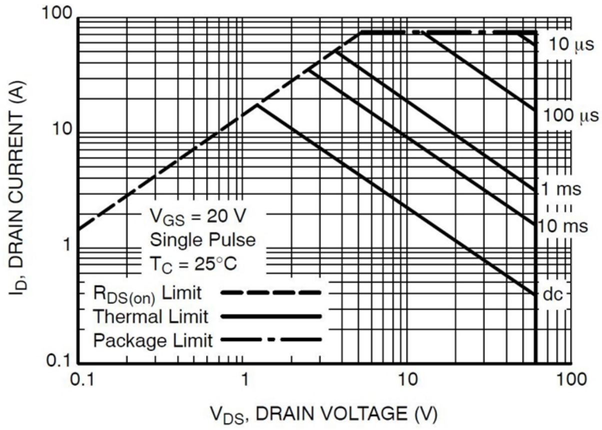


Figure 11. Maximum Rated Forward Biased Safe Operating Area

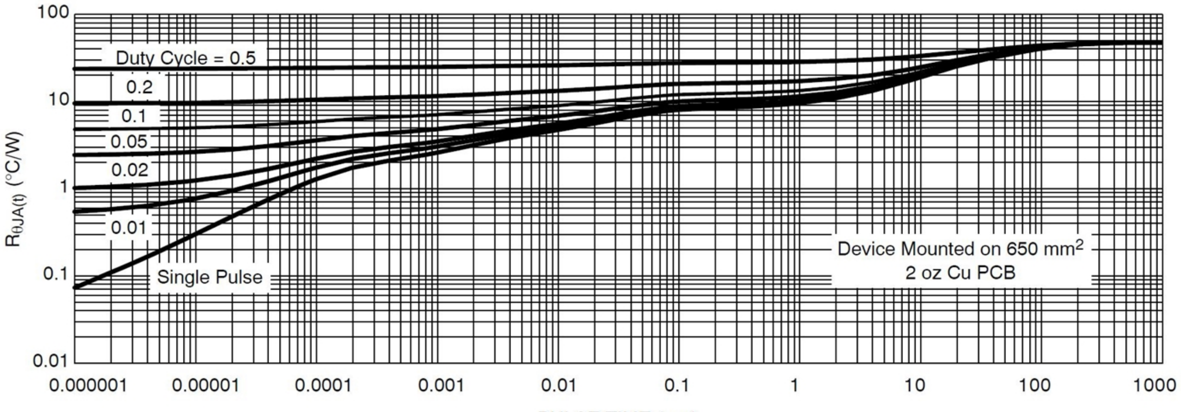
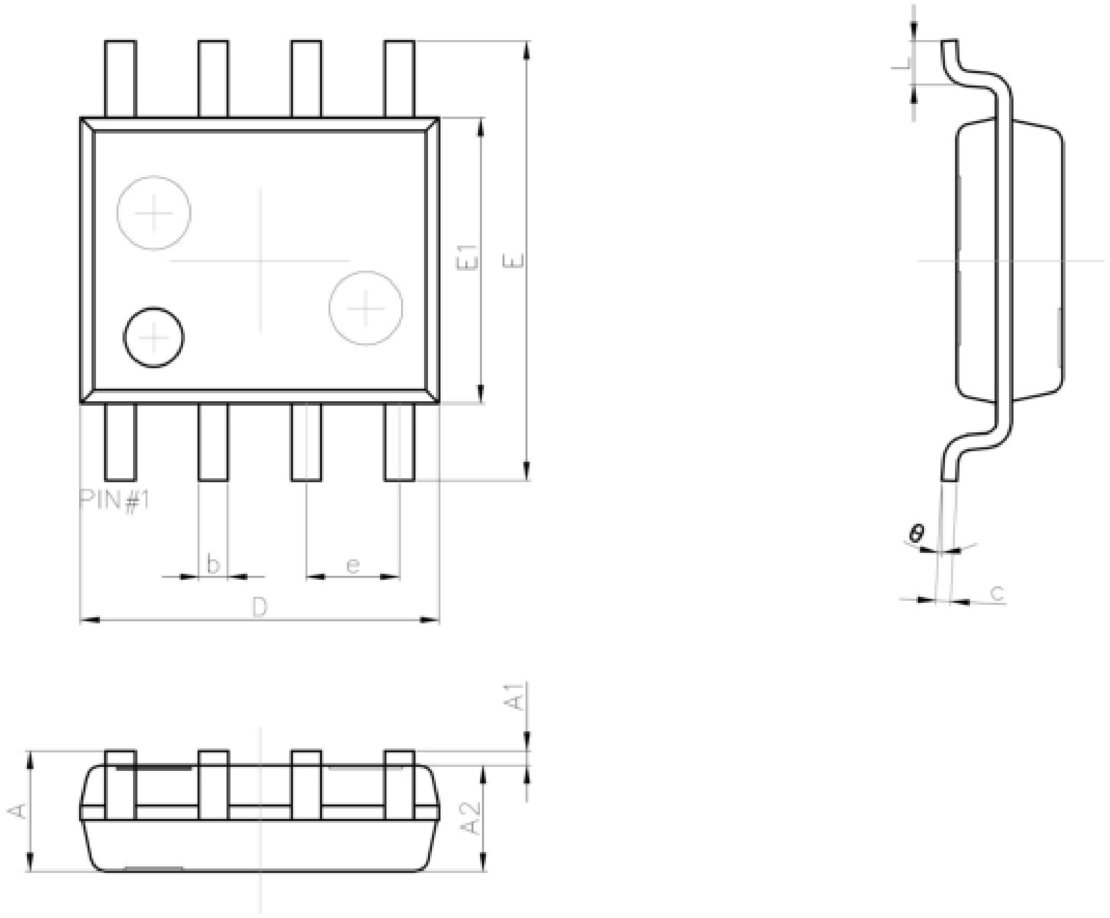


Figure 12. Thermal Response

SOP-8 Package Information



Symbol	Dimensions In Millimeters	
	Min.	Max.
A	1.35	1.75
A1	0.10	0.25
A2	1.35	1.55
b	0.33	0.51
c	0.17	0.25
D	4.80	5.00
e	1.27 REF.	
E	5.80	6.20
E1	3.80	4.00
L	0.40	1.27
θ	0°	8°