Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
100V	90mΩ@10V	3.5A
	100mΩ@4.5V	
-100V	230mΩ@-10V	-2.5A
	240mΩ@-4.5V	

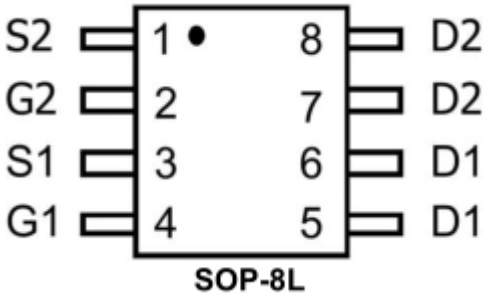
Feature

- TrenchFET Power MOSFET
- Excellent $R_{DS(on)}$ and Low Gate Charge
- Fast Switching Speed

Applications

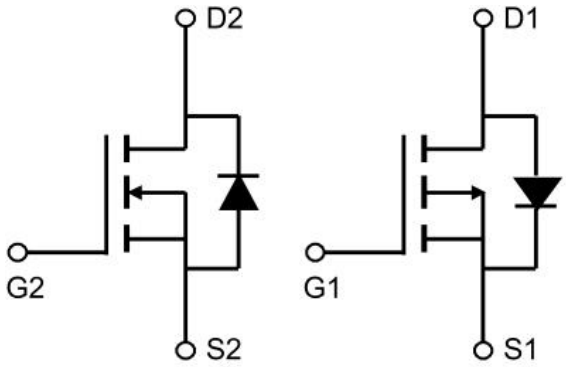
- Motor Control
- DC-DC Converters
- Power Management

Package

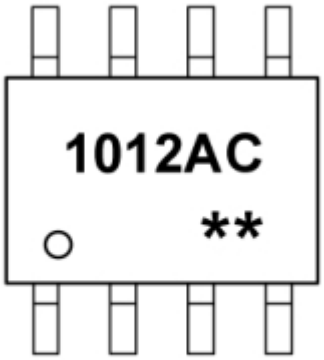


SOP-8L

Circuit diagram



Marking



1012AC = Device code

**** = Week Code**

Absolute maximum ratings

(T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value		Unit
		N-Channel	P-Channel	
Drain-Source Voltage	V_{DS}	100	-100	V
Gate-Source Voltage	V_{GS}	±20	±20	V
Continuous Drain Current	I_D	3.5	-2.5	A
Power Dissipation	P_D	1.8	1.8	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	69.5		℃/W
Junction Temperature	T_J	150		℃
Storage Temperature	$T_{STG,}$	-55 to 150		℃

N-Channel Electrical characteristics

(T_A=25℃, unless otherwise noted)

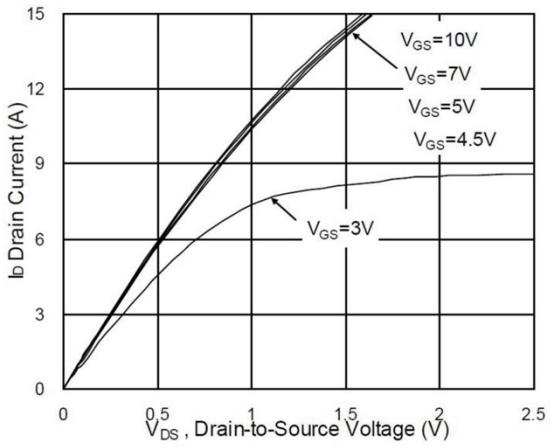
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$BV_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	100			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} =80V, V_{GS} = 0V			1	uA
Gate-Body Leakage Current	I_{GSS}	V_{GS} =±20V, V_{DS} = 0V			±0.1	uA
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 =2A		90	110	mΩ
		V_{GS} =4.5V, I_D =1A		100	120	
Dynamic Characteristics						
Input capacitance	C_{iss}	V_{DS}=15V, V_{GS}=0V, f=1MHz		1100		pF
Output capacitance	C_{oss}			55		
Reverse transfer capacitance	C_{rss}			40		
Switching Characteristics						
Total Gate Charge	Q_g	V_{DS}=80V, V_{GS}=10V, I_D =2A		12		pF
Gate-Source Charge	Q_{gs}			2.9		
Gate-Drain Charge	Q_{gd}			1.8		
Turn-on Delay Time	$T_{d(on)}$	V_{DD}=50V, V_{GS}=10V, R_G =3Ω, I_D =2A		3.9		nS
Turn-on Rise Time	T_r			26		
Turn-Off Delay Time	$T_{d(off)}$			16.2		
Turn-Off Fall Time	t_f			8.9		
Source-Drain Diode Characteristics						
Diode Forward Voltage	V_{SD}	I_S=1A, V_{GS} = 0V			1.2	V

P-Channel Electrical characteristics

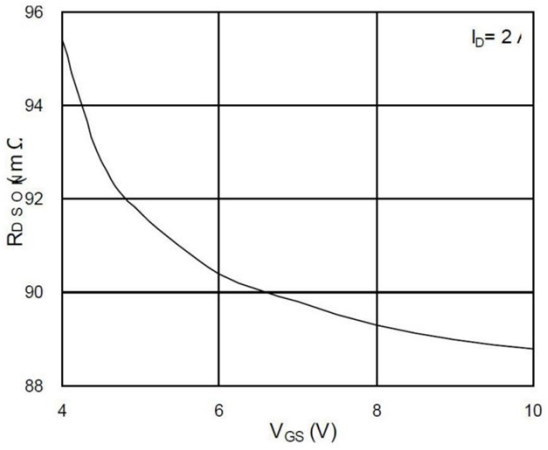
(T_A=25℃, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$BV_{(BR)DSS}$	V_{GS} = 0V, I_D =-250μA	-100			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} =-80V, 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	-1.8	-2.5	V
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS} =-10V, I_D =-2A		230	290	mΩ
		V_{GS} =-4.5V, I_D =-1A		240	320	
Dynamic Characteristics						
Input capacitance	C_{iss}	V_{DS}=-15V, V_{GS}=0V, f=1MHz		1239		pF
Output capacitance	C_{oss}			42		
Reverse transfer capacitance	C_{rss}			29		
Switching Characteristics						
Turn-on Delay Time	$T_{d(on)}$	V_{DD}=-50V, I_D =-2A, V_{GS}=-10V, R_{GEN} =10Ω		9.1		nS
Turn-on Rise Time	T_r			14.8		
Turn-Off Delay Time	$T_{d(off)}$			57		
Turn-Off Fall Time	t_f			14		
Total Gate Charge	Q_g	V_{DS}=-60V, V_{GS}=-10V, I_D =-2A		25		pF
Gate-Source Charge	Q_{gs}			5		
Gate-Drain Charge	Q_{gd}			7		
Source-Drain Diode Characteristics						
Body Diode Voltage	V_{SD}	I_S=-1A, V_{GS} = 0V			1.2	V

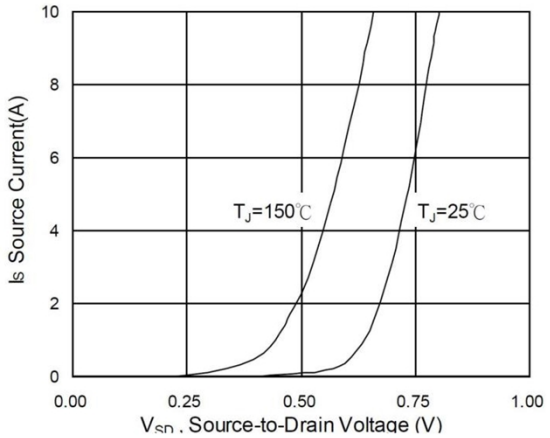
N-Channel Typical Characteristics



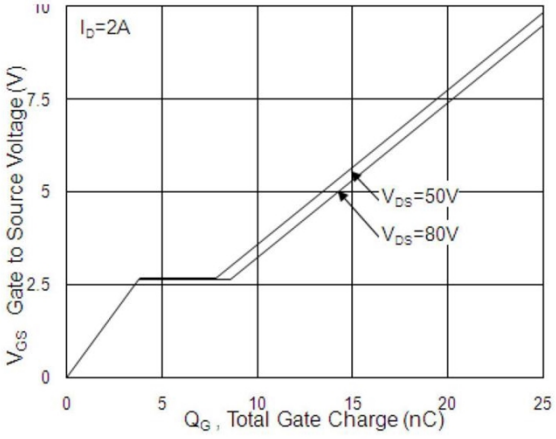
Typical Output Characteristics



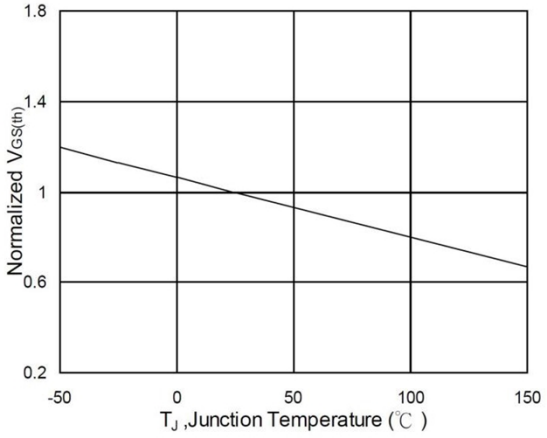
On-Resistance vs. Gate-Source



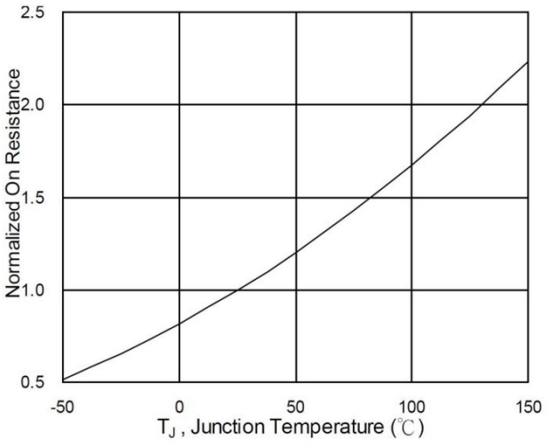
Forward Characteristics Of Reverse



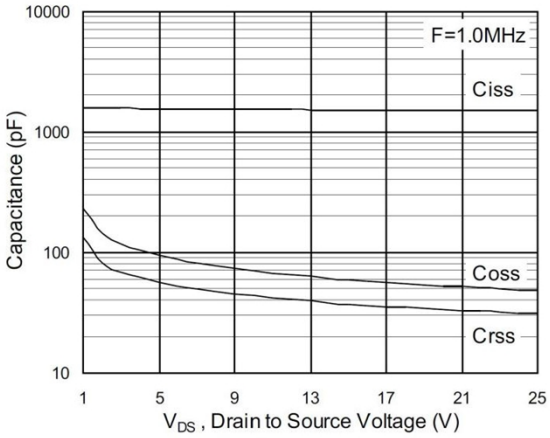
Gate-Charge Characteristics



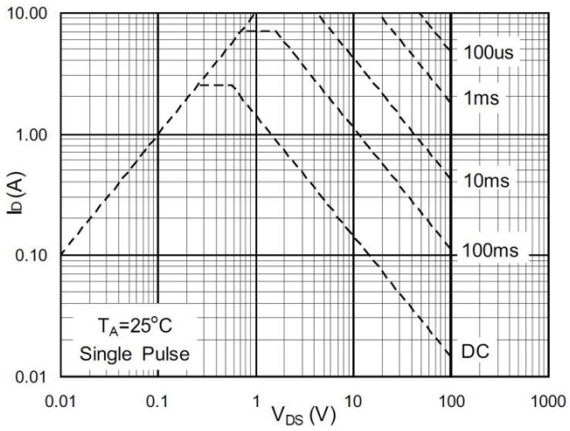
Normalized VGS(th) vs. TJ



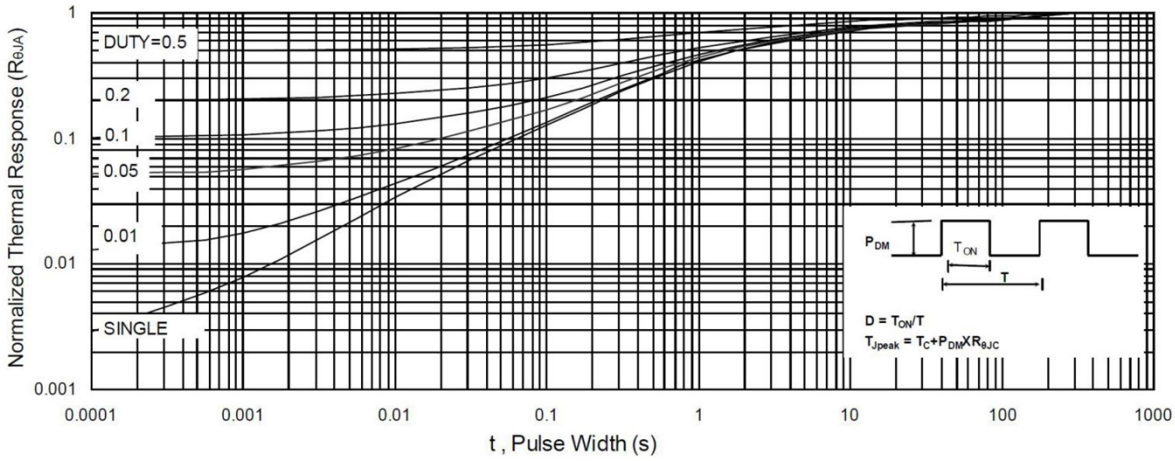
Normalized RDSON vs. TJ



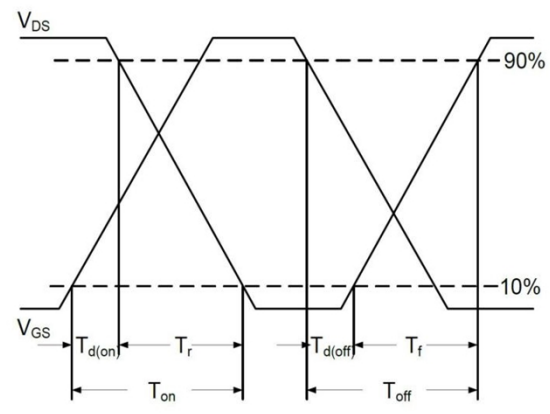
Capacitance



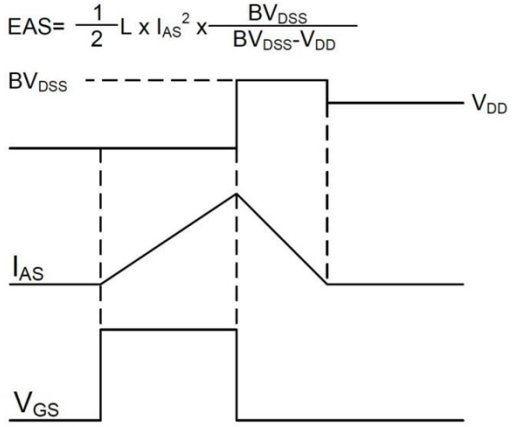
Safe Operating Area



Normalized Maximum Transient Thermal Impedance

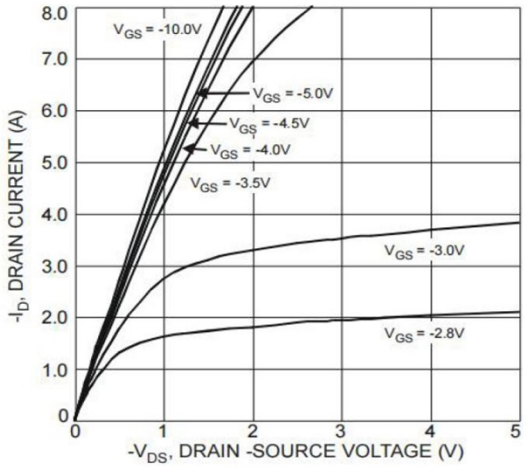


Switching Time Waveform

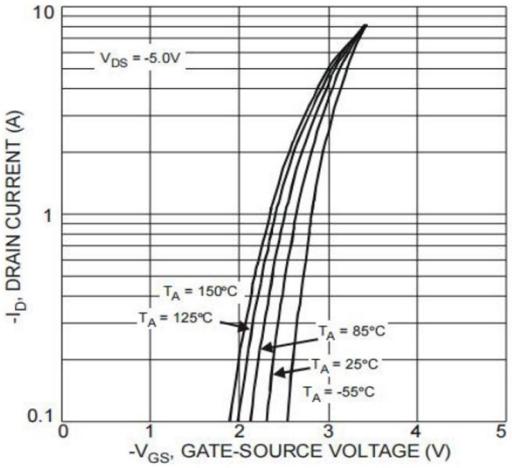


Unclamped Inductive Switching Waveform

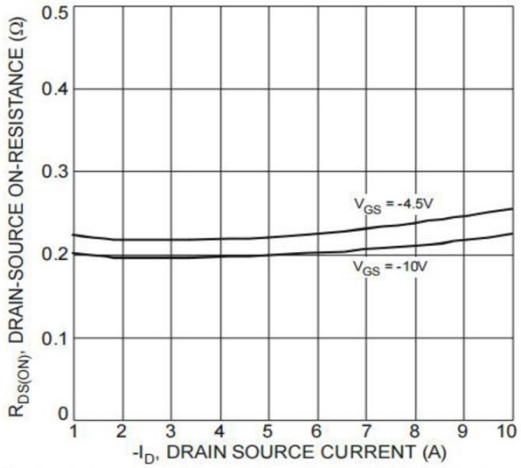
P-Channel Typical Characteristics



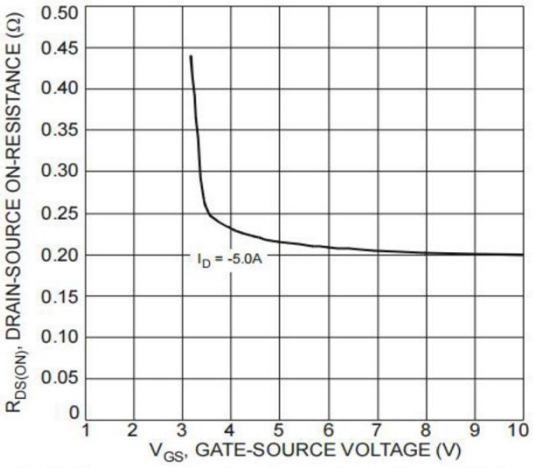
Typical Output Characteristics



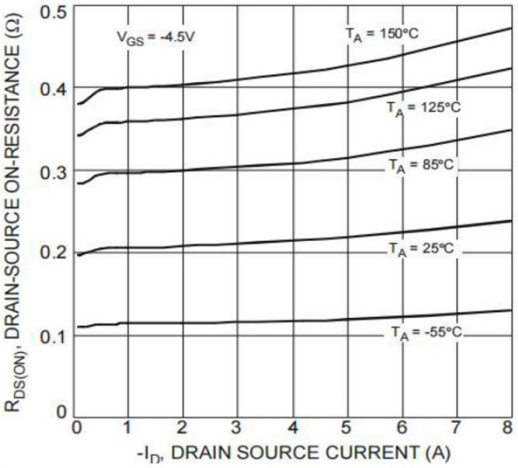
Transfer Characteristics



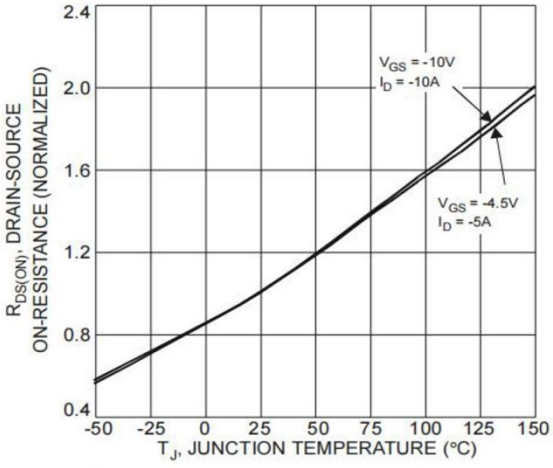
On-Resistance vs. Drain Current and Gate Voltage



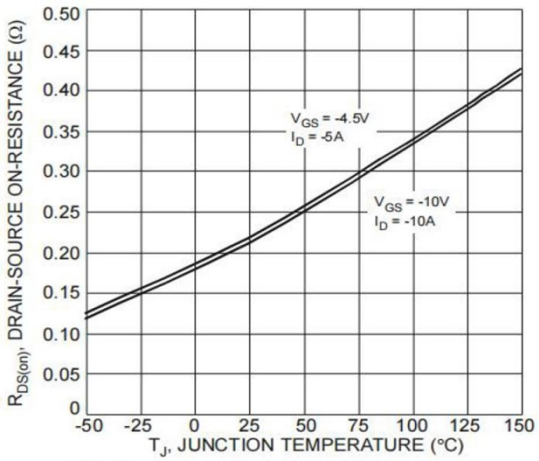
Drain-Source On-Resistance vs.Gate-Source Voltage



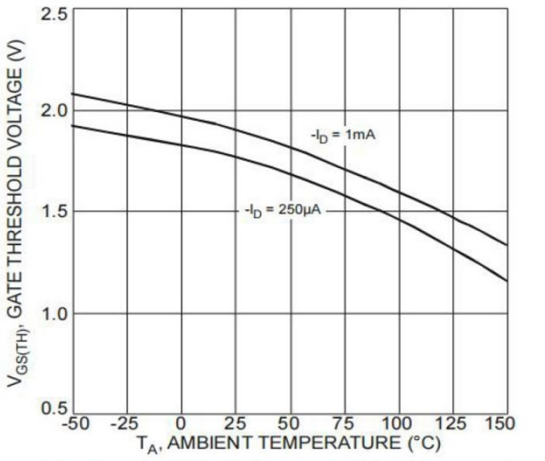
On-Resistance vs. Drain Current and Temperature



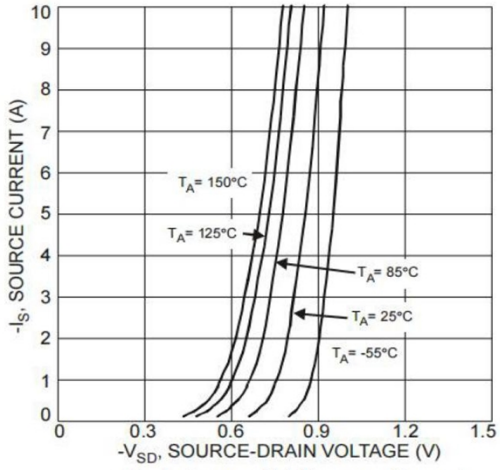
On-Resistance Variation with Temperature



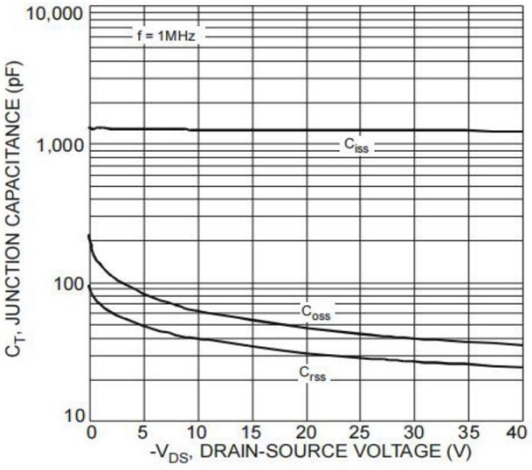
On-Resistance Variation with Temperature



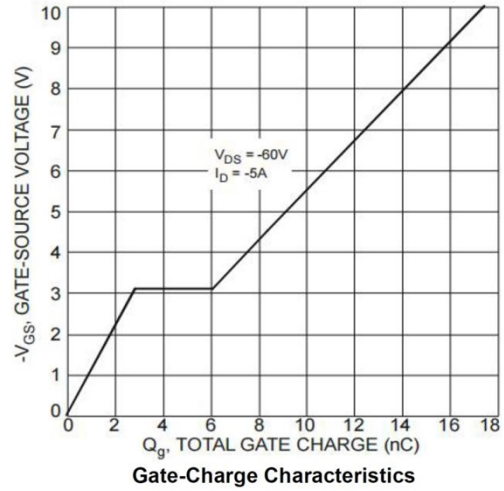
Gate Threshold Variation vs. Ambient Temperature



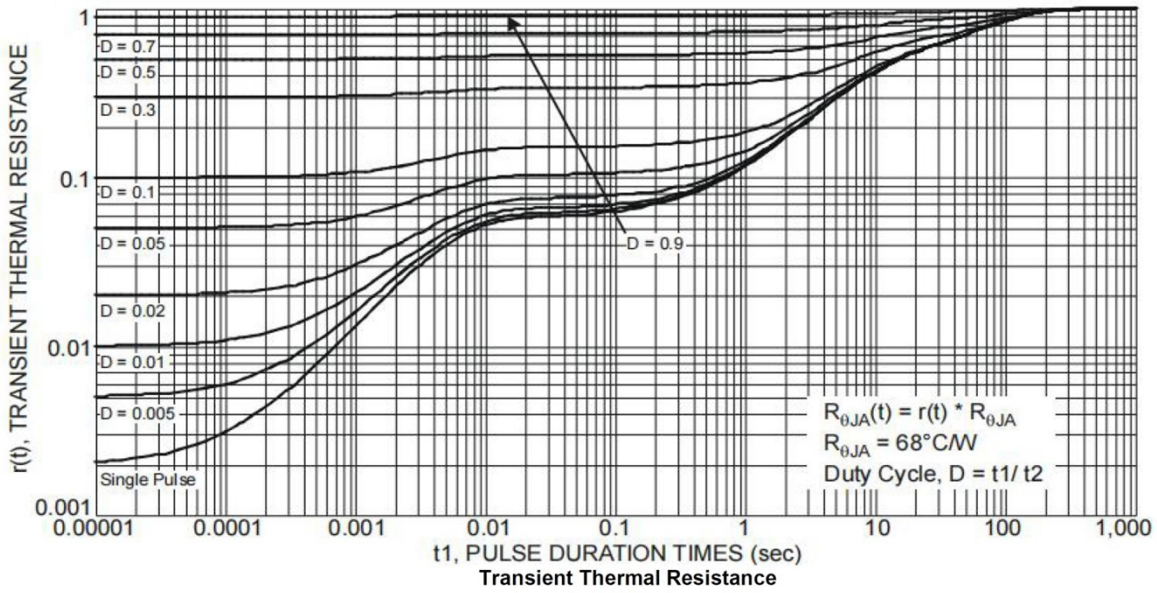
Diode Forward Voltage vs. Current



Typical Junction Capacitance

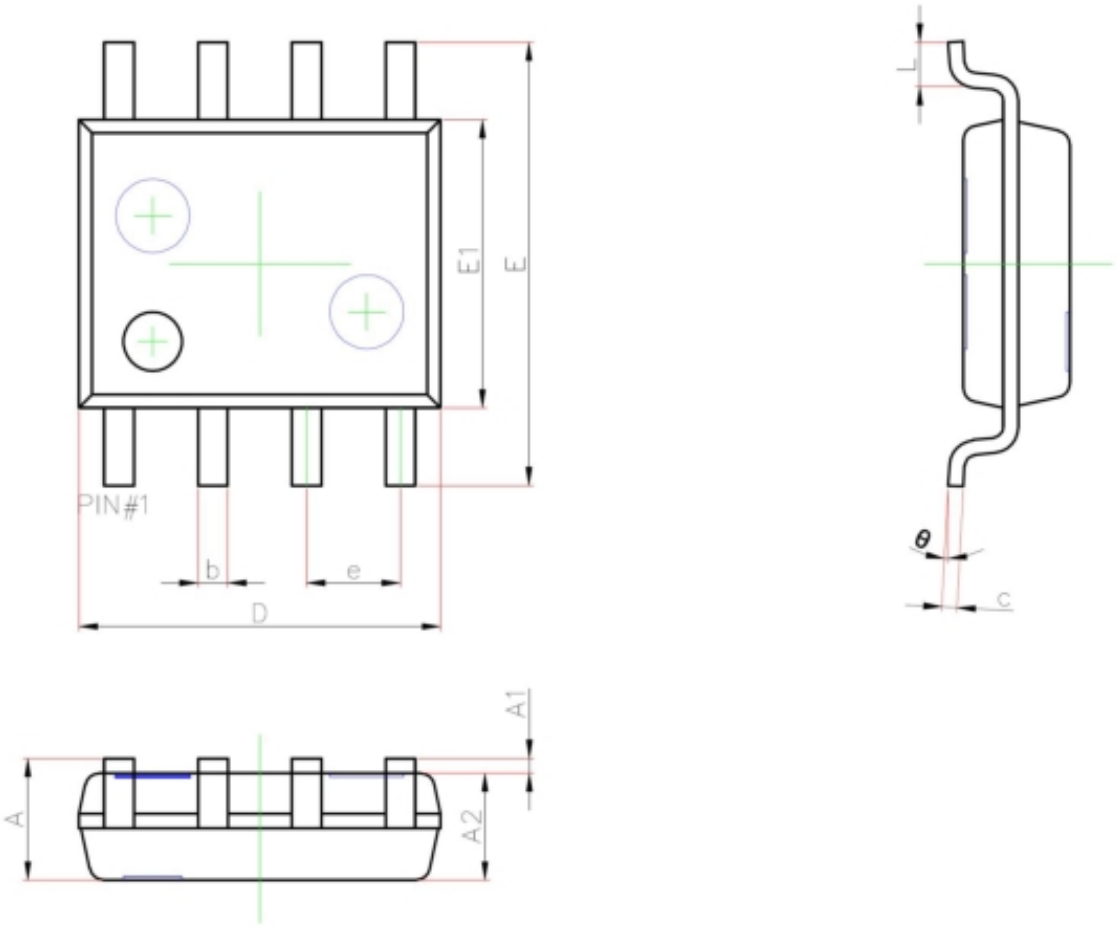


Gate-Charge Characteristics



Transient Thermal Resistance

SOP-8L 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°