

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
100V	120mΩ@10V	2.5A
	140mΩ@4.5V	
-100V	230mΩ@-10V	-2.5A
	240mΩ@-4.5V	

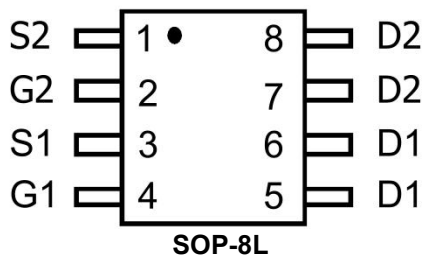
Feature

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

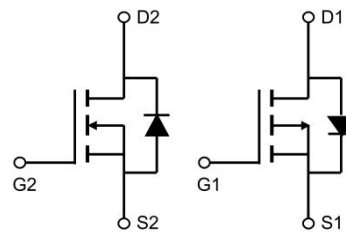
Application

- Motor Control
- DC-DC Converters
- Power Management

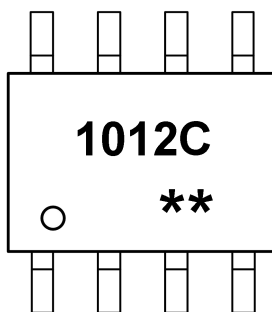
Package



Circuit diagram



Marking



1012C = Device code
** = Week Code

Absolute maximum ratings (Ta=25°C 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	2.5	-2.5	A
Power Dissipation	P_D	1.8	1.8	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	69.5		$^{\circ}C/W$
Junction Temperature	T_J	150		$^{\circ}C$
Storage Temperature	T_{STG}	-55~ +150		$^{\circ}C$

N-Channel Electrical characteristics (T_A=25 °C, unless otherwise noted)

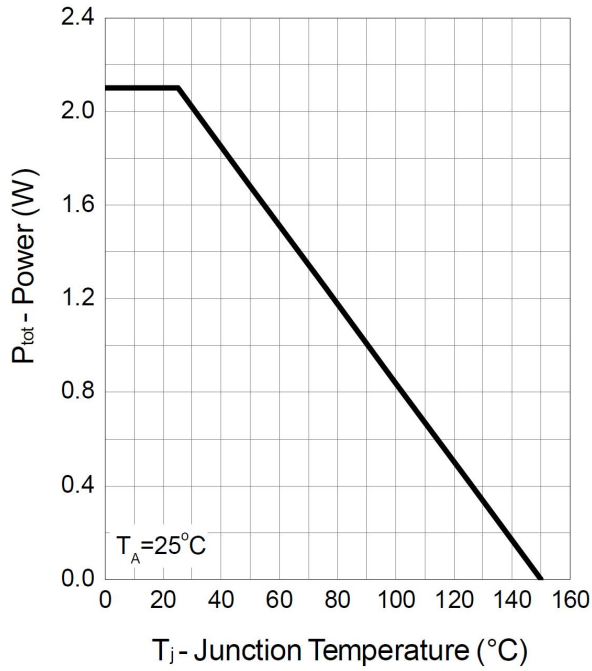
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	100	-	-	V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = 80V, V_{GS} = 0V$	-	-	1	μA
Gate-body leakage current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$	-	-	± 0.1	μA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.0	1.8	2.5	V
Drain-source on-resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 2A$	-	120	150	m Ω
		$V_{GS} = 4.5V, I_D = 1A$	-	140	190	
Dynamic characteristics						
Input Capacitance	C_{iss}	$V_{DS}=15V, V_{GS}=0V, f=1MHz$	-	1535	-	pF
Output Capacitance	C_{oss}		-	60	-	
Reverse Transfer Capacitance	C_{rss}		-	37	-	
Switching Characteristics						
Total gate charge	Q_g	$V_{DS}=80V, V_{GS}=10V, I_D=2A$	-	26	-	nC
Gate-source charge	Q_{gs}		-	3.8	-	
Gate-drain charge	Q_{gd}		-	4.8	-	
Turn-on delay time	$t_{d(on)}$	$V_{DD}=50V, V_{GS}=10V, RG=3.3, I_D=2A$	-	4.2	-	ns
Turn-on rise time	t_r		-	7.6	-	
Turn-off delay time	$t_{d(off)}$		-	41	-	
Turn-off fall time	t_f		-	14	-	
Diode Characteristics						
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=1A, T_J=25^{\circ}C$	-	-	1.2	V

P-Channel Electrical characteristics (T_A=25 °C, unless otherwise noted)

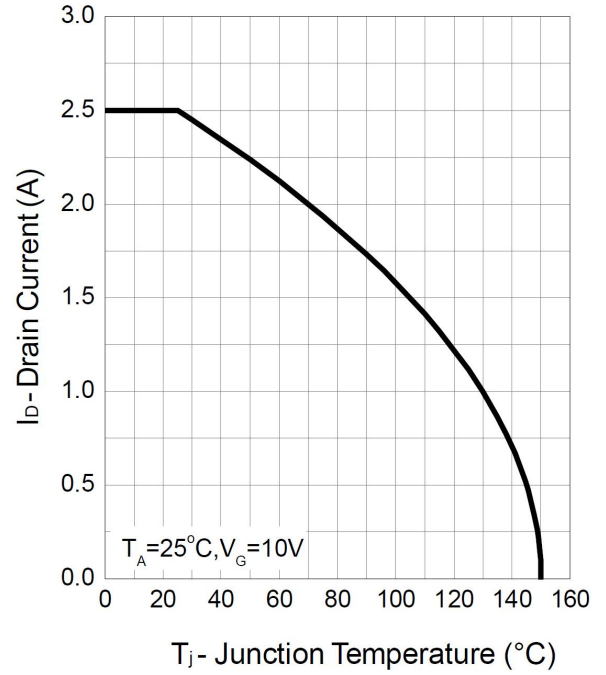
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = -250μA	-100	-	-	V
Zero gate voltage drain current	I _{DSS}	V _{DS} = -80V, V _{GS} = 0V	-	-	-1	μA
Gate-body leakage current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 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-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}		-	38	-	
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		-	34	-	
Total gate charge	Q _g	V _{DS} = -60V, V _{GS} = -10V, I _D = -2A	-	17.5	-	nC
Gate-source charge	Q _{gs}		-	2.8	-	
Gate-drain charge	Q _{gd}		-	3.2	-	
Source-Drain Diode Characteristics						
Body Diode Voltage	V _{SD}	I _S = -1A, V _{GS} = 0V	-	-	-1.2	V

N-Channel Typical Characteristics

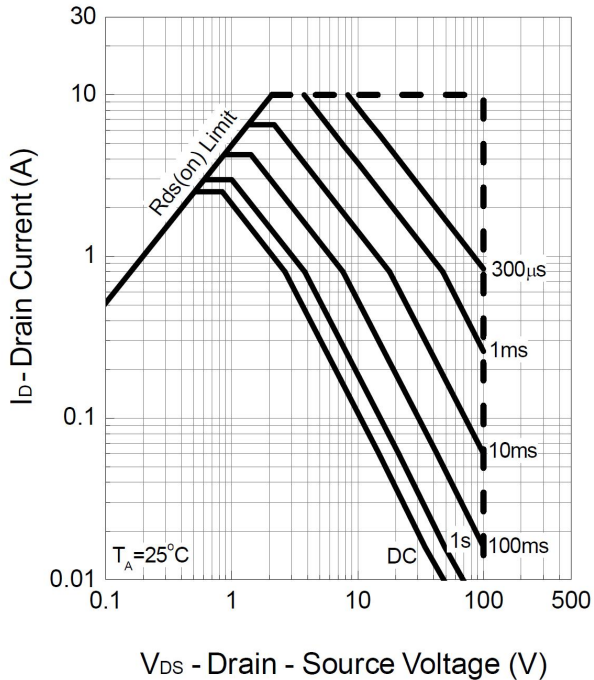
Power Dissipation



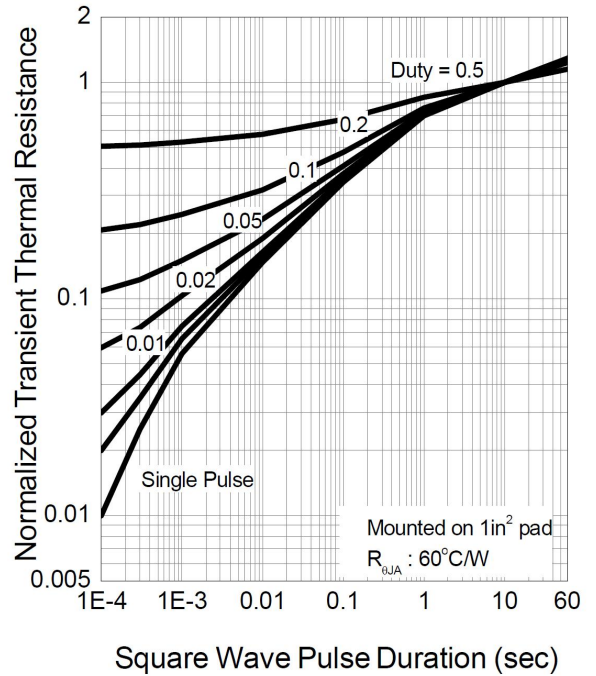
Drain Current



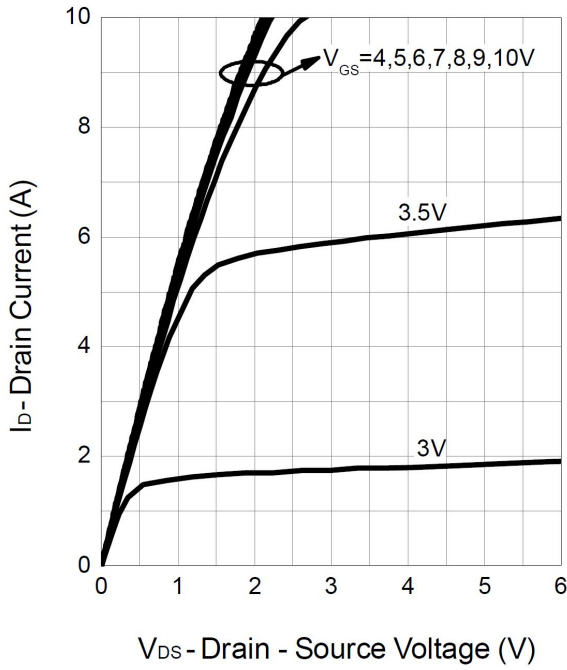
Safe Operation Area



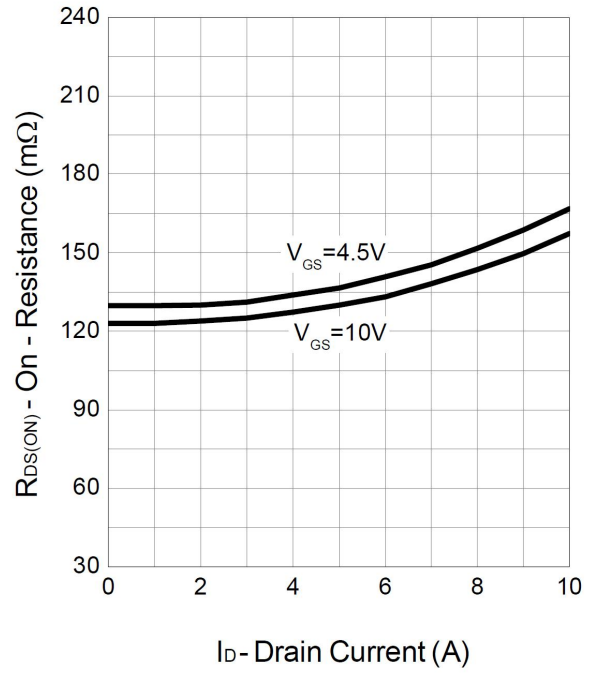
Thermal Transient Impedance



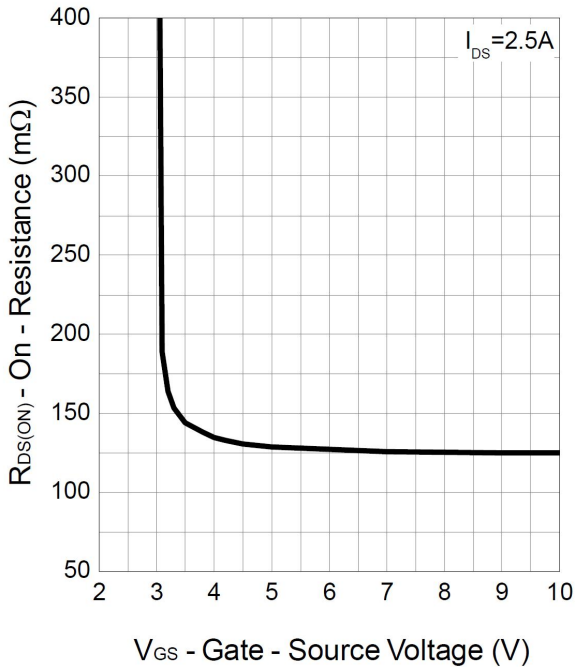
Output Characteristics



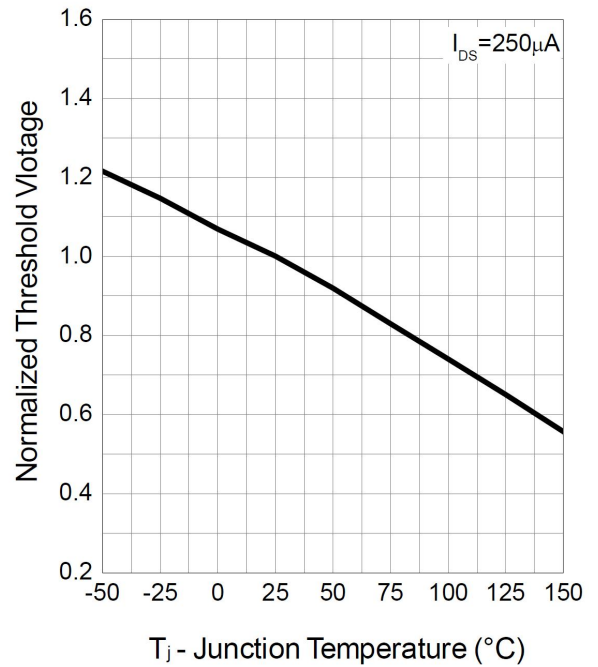
Drain-Source On Resistance



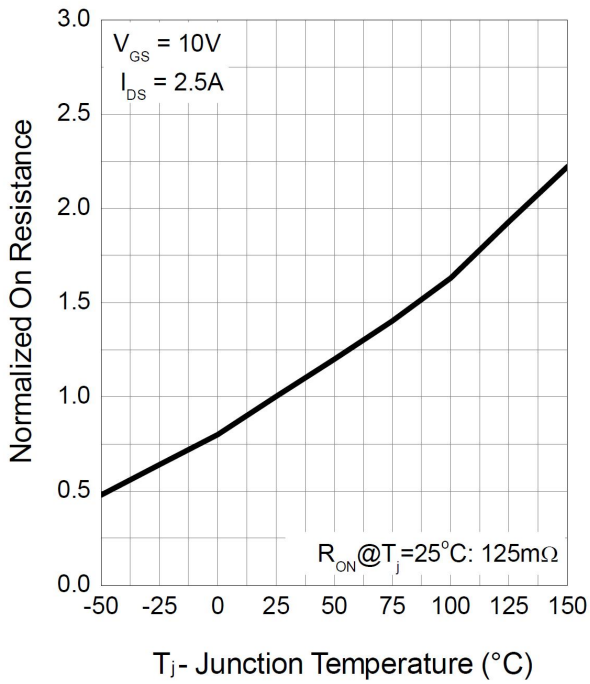
Gate-Source On Resistance



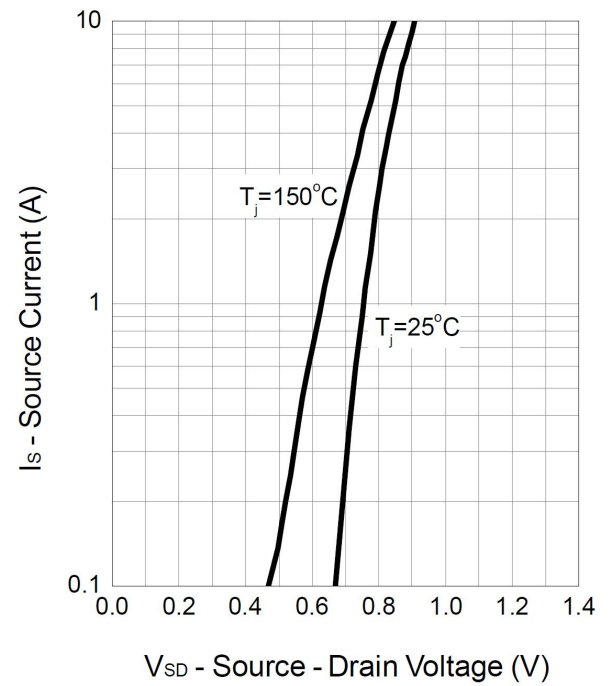
Gate Threshold Voltage



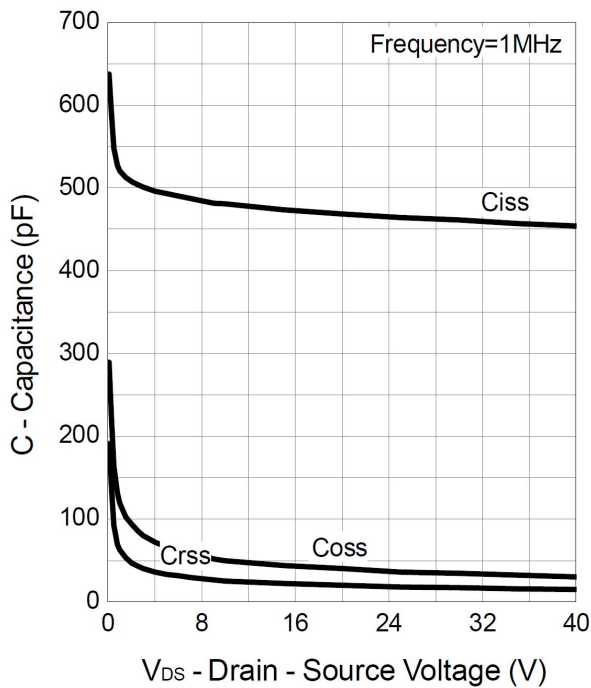
Drain-Source On Resistance



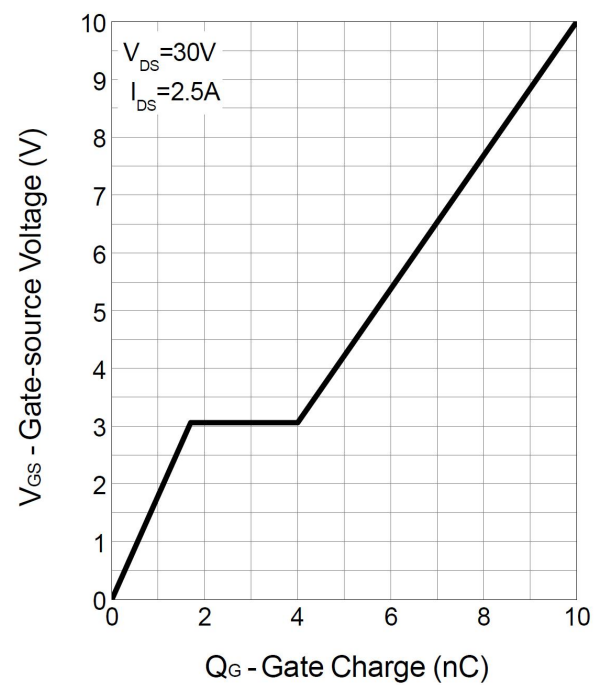
Source-Drain Diode Forward



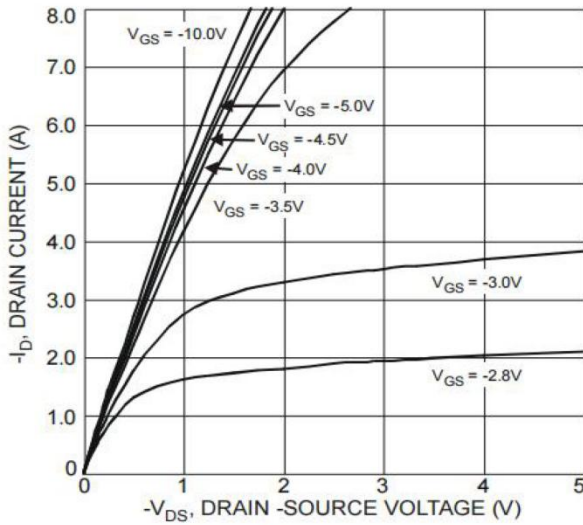
Capacitance



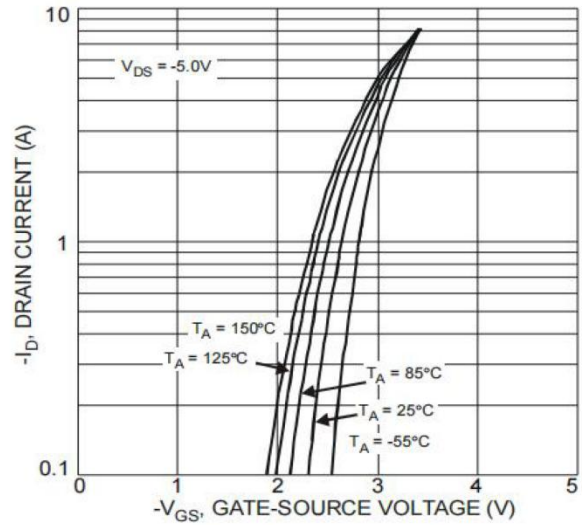
Gate Charge



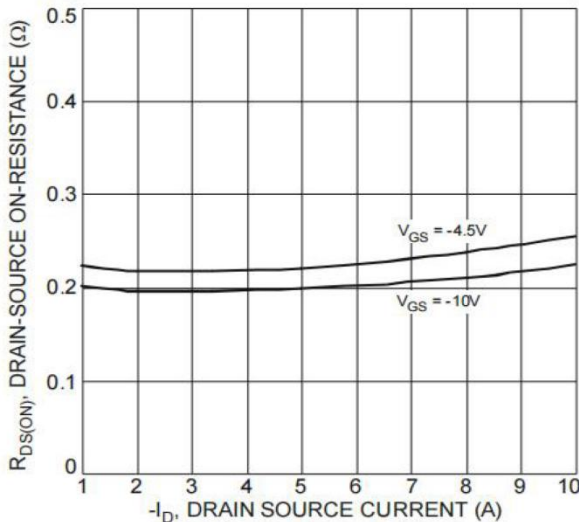
P-Channel Typical Characteristics



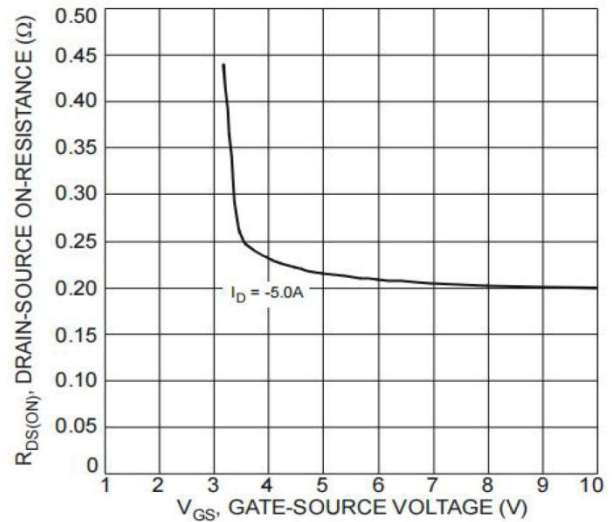
Typical Output Characteristics



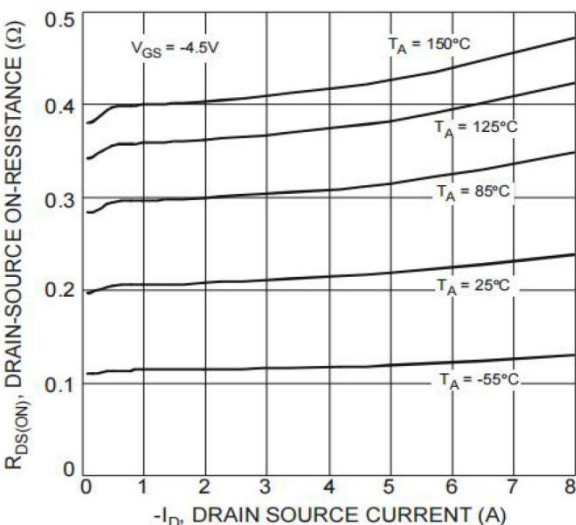
Transfer Characteristics



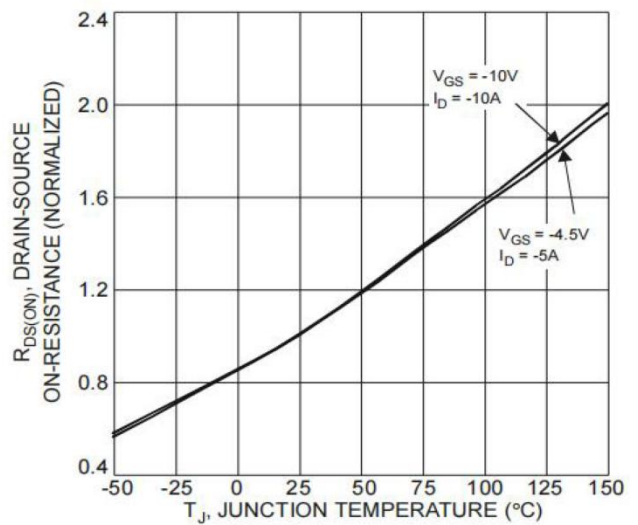
On-Resistance vs. Drain Current and Gate Voltage



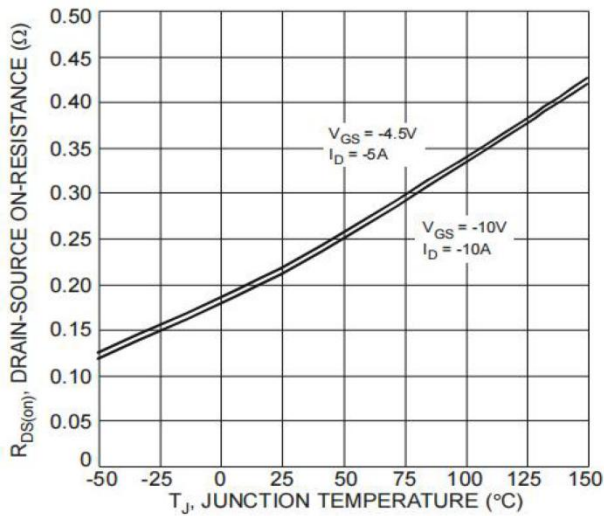
Drain-Source On-Resistance vs. Gate-Source Voltage



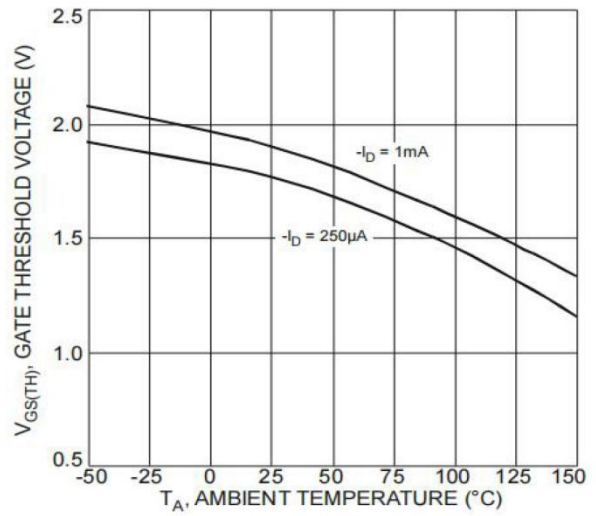
On-Resistance vs. Drain Current and Temperature



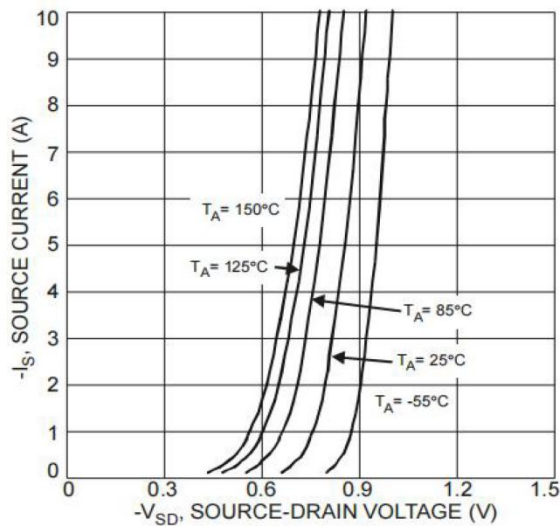
On-Resistance Variation with Temperature



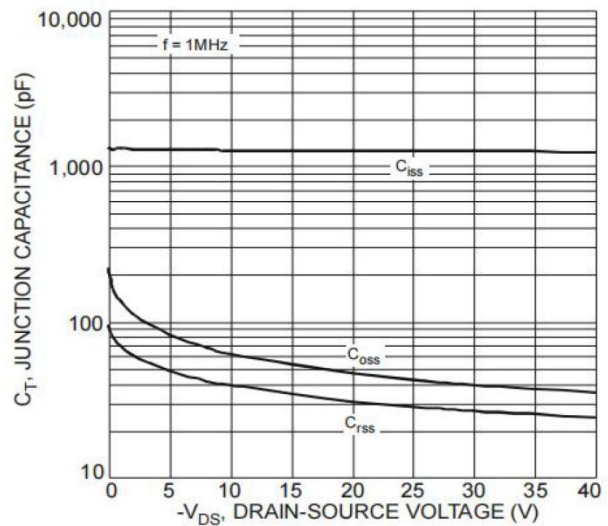
On-Resistance Variation with Temperature



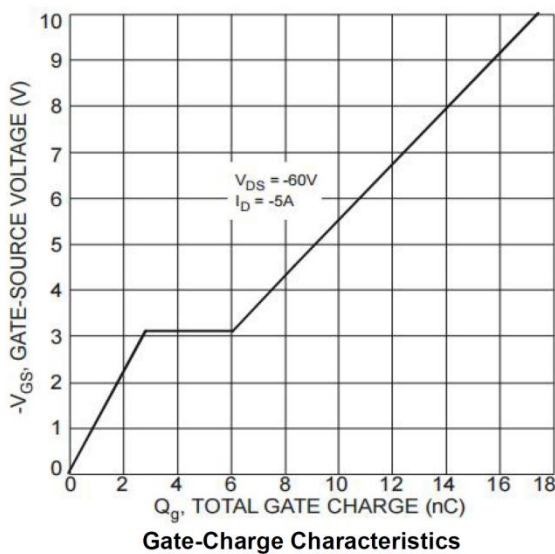
Gate Threshold Variation vs. Ambient Temperature



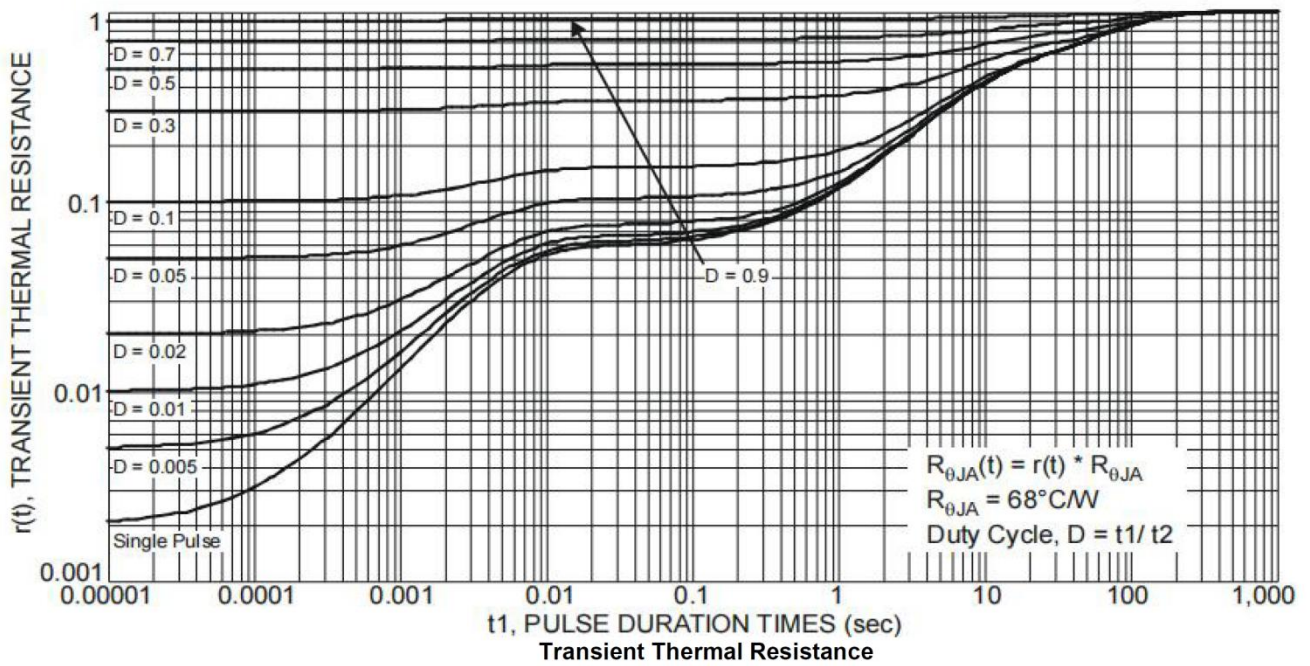
Diode Forward Voltage vs. Current



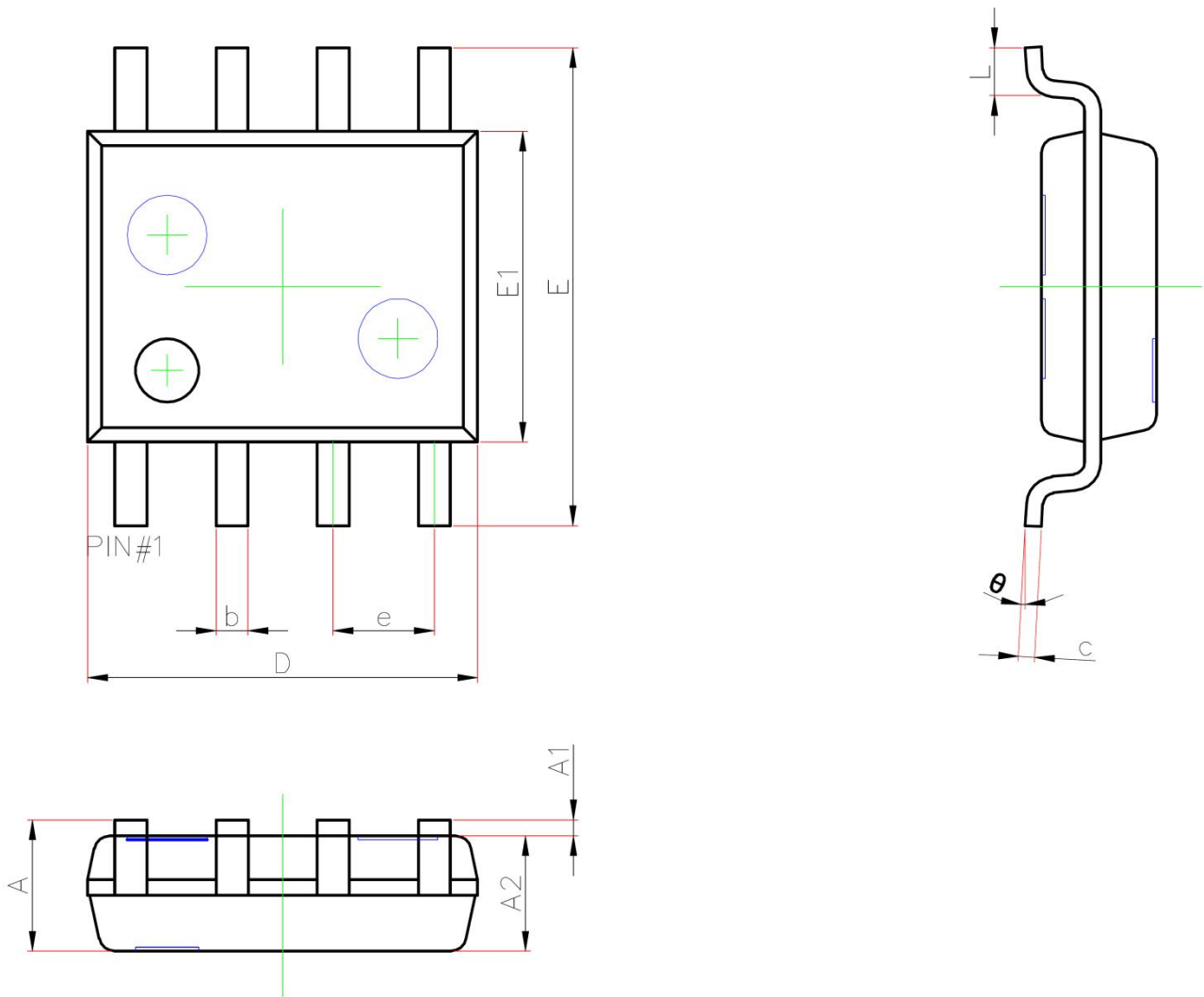
Typical Junction Capacitance



Gate-Charge Characteristics



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°

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