

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
30V	18mΩ@10V	6A
	24mΩ@4.5V	
-30V	30mΩ@-10V	-6A
	45mΩ@-4.5V	

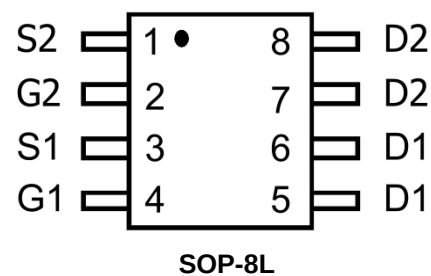
Feature

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

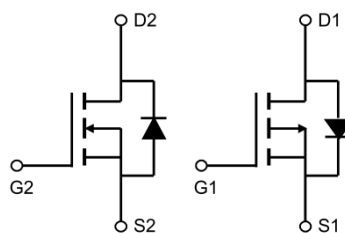
Application

- Load Switch for Portable Devices
- Battery Switch

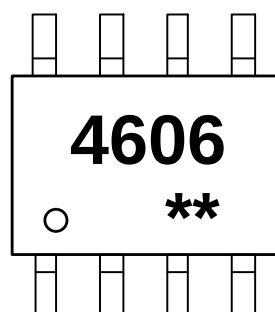
Package



Circuit diagram



Marking



4606 = 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}	30	-30	V
Gate-Source Voltage	V_{GS}	± 20	± 20	V
Continuous Drain Current($t \leq 10s$)	I_D	6	-6	A
Power Dissipation($t \leq 10s$)	P_D	2	2	W
Thermal Resistance from Junction to Ambient($t \leq 10s$)	$R_{\theta JA}$	62.5		°C/W
Junction Temperature	T_J	150		°C
Storage Temperature	T_{STG}	-55~ +150		°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}	VGS = 0V, ID = 250μA	30			V
Zero gate voltage drain current	IDSS	VDS = 30V,VGS = 0V			1	μA
Gate-body leakage current	IGSS	VGS =±20V, VDS = 0V			±0.1	μA
Gate threshold voltage	VGS(th)	VDS =VGS, ID = 250μA	1.0	1.5	2.2	V
Drain-source on-resistance ¹⁾	RDS(on)	VGS = 10V, ID = 1A		18	30	mΩ
		VGS = 4.5V, ID = 1A		24	42	
Dynamic characteristics ²⁾						
Input Capacitance	Ciss	VDS=15V , VGS=0V , f=1MHz		416		pF
Output Capacitance	Coss			62		
Reverse Transfer Capacitance	Crss			51		
Switching Characteristics						
Total gate charge@4.5V	Qg	VDS=20V , VGS=4.5V , ID=6A		5		nC
Gate-source charge	Qgs			1.11		
Gate-drain charge	Qgd			2.61		
Turn-on delay time	td(on)	VDD=12V , VGS=10V , RG=3.3 ID=6A		7.7		ns
Turn-on rise time	tr			46		
Turn-off delay time	td(off)			11		
Turn-off fall time	tr			3.6		
Diode Characteristics						
Diode Forward Voltage	VSD	VGS=0V , IS=1A , TJ=25℃			1.2	v

Notes:

- 1) Pulse test: pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
- 2) Guaranteed by design, not subject to production testing.

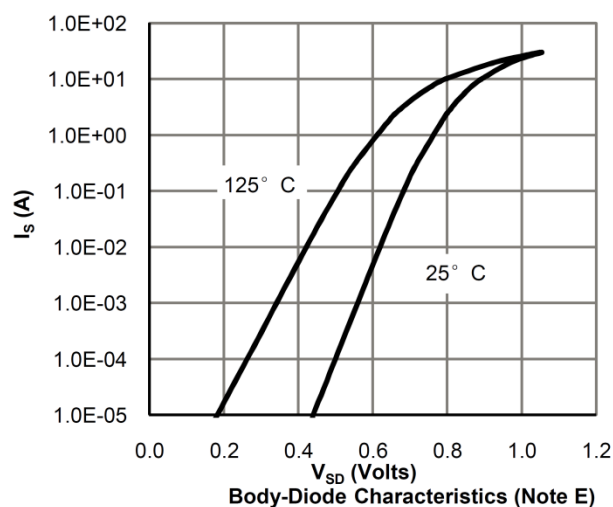
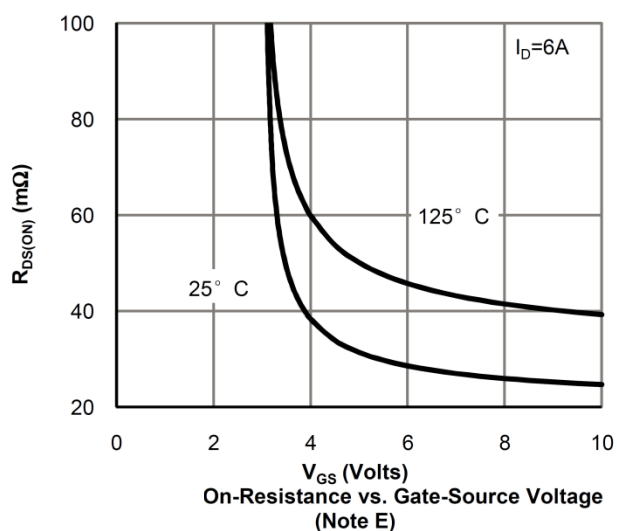
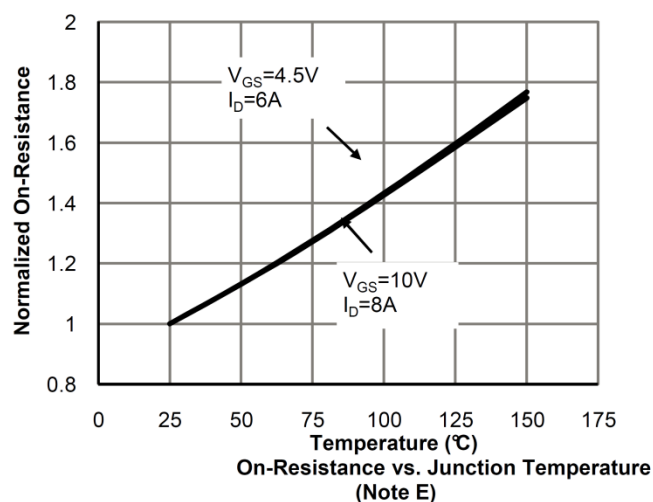
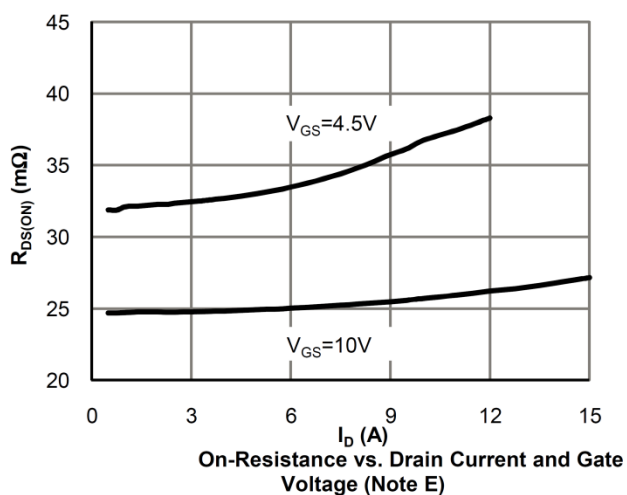
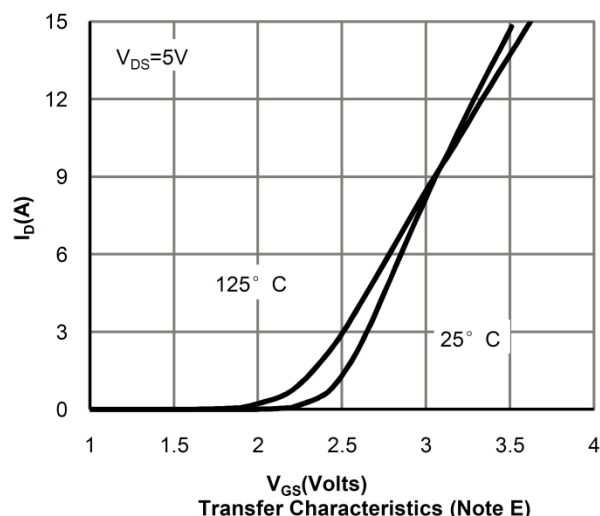
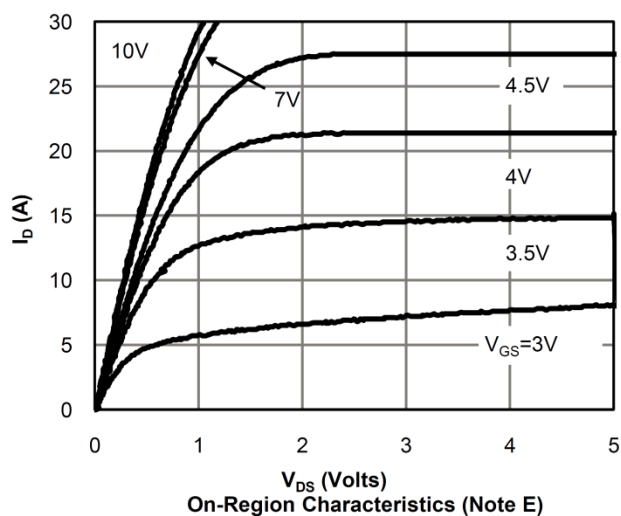
**P-Channel Electrical characteristics (T_A=25 °C, unless otherwise noted)**

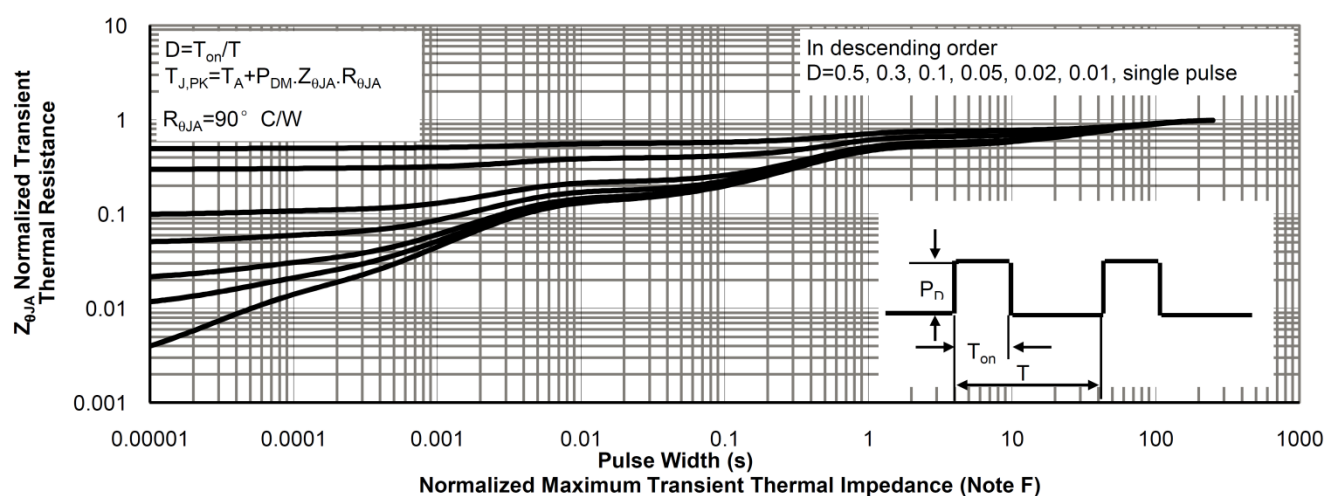
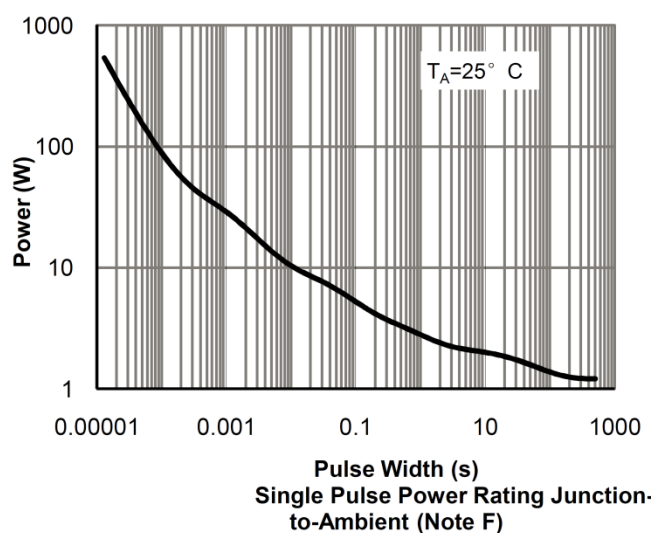
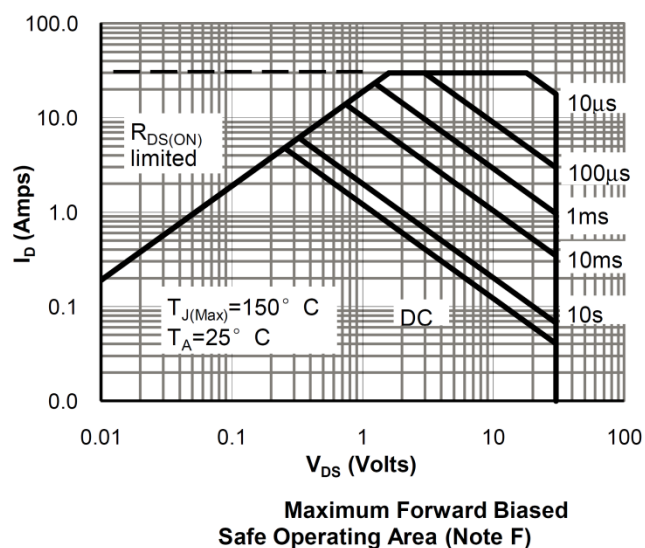
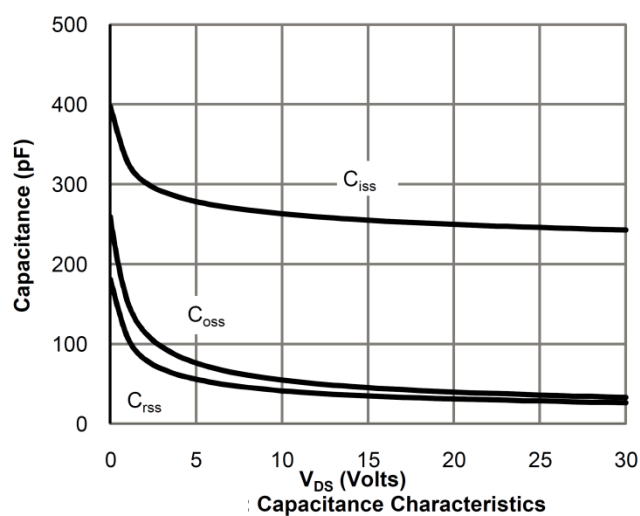
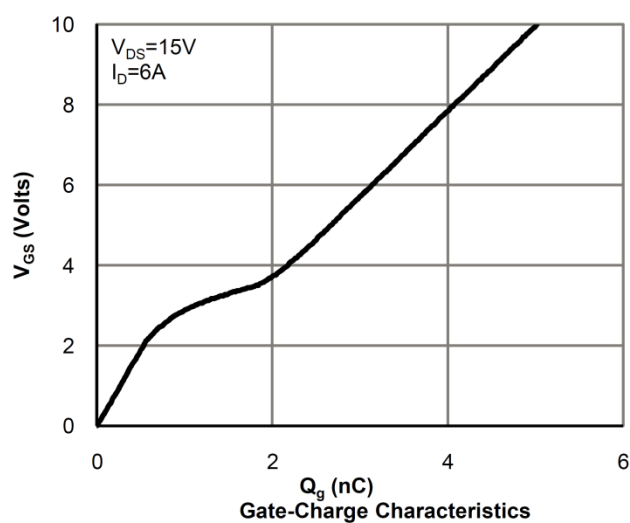
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	VGS = 0V, ID = -250μA	-30			V
Zero gate voltage drain current	IDSS	VDS = -30V,VGS = 0V			1	μA
Gate-body leakage current	IGSS	VGS =±20V, VDS = 0V			±0.1	μA
Gate threshold voltage	VGS(th)	VDS =VGS, ID = -250μA	-1.0	-1.5	-2.2	V
Drain-source on-resistance ¹⁾	RDS(on)	VGS = -10V, ID = -1A		30	35	mΩ
		VGS = -4.5V, ID = -1A		45	65	
Dynamic characteristics ²⁾						
Input Capacitance	Clss	VDS=-15V,VGS=0V, F=1.0MHz		729.4		PF
Output Capacitance	Coss			112.6		
Reverse Transfer Capacitance	Crss			107.5		
Switching Characteristics						
Total Gate Charge	Qg	VDS=-15V,ID=-6.5A VGS=-10V		16.6		nC
Gate-Source Charge	Qgs			1.8		
Gate-Drain Charge	Qgd			4.2		
Turn-on Delay Time	td(on)	VDD=-15V, RL=2.3Ω VGS=-10V,RGEN=6Ω		7.5		nS
Turn-on Rise Time	tr			5.5		
Turn-Off Delay Time	td(off)			19		
Turn-Off Fall Time	tf			7		
Diode Characteristics						
Diode forward voltage ¹⁾	VSD	IS= -1A,VGS=0V			-1.2	V

Notes:

- 1) Pulse test: pulse width ≤ 300μs, duty cycle ≤ 2%.
- 2) Guaranteed by design, not subject to production testing.

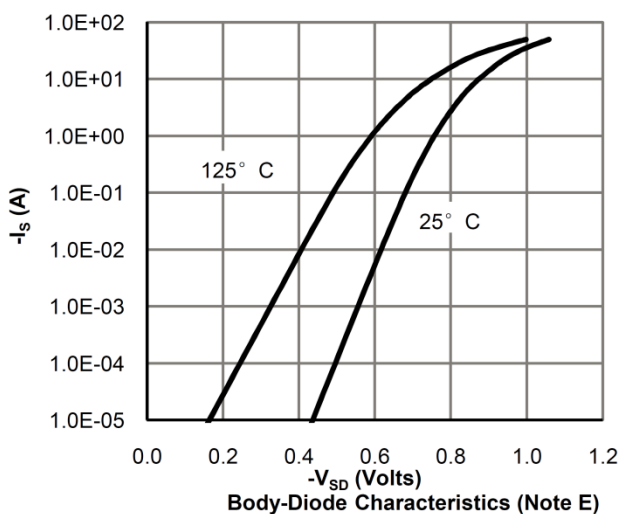
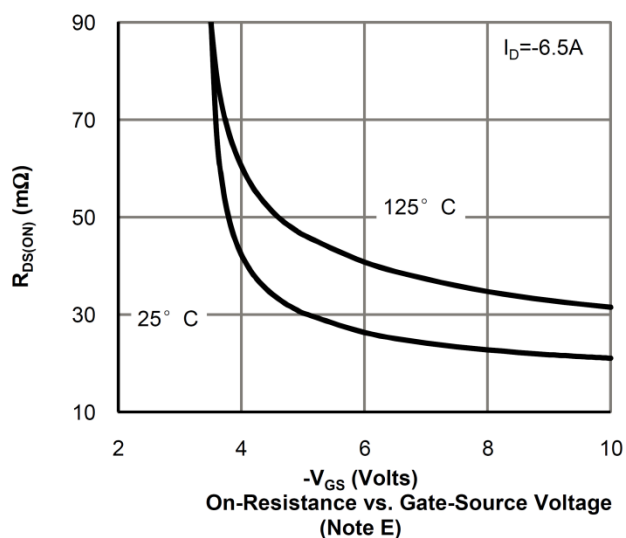
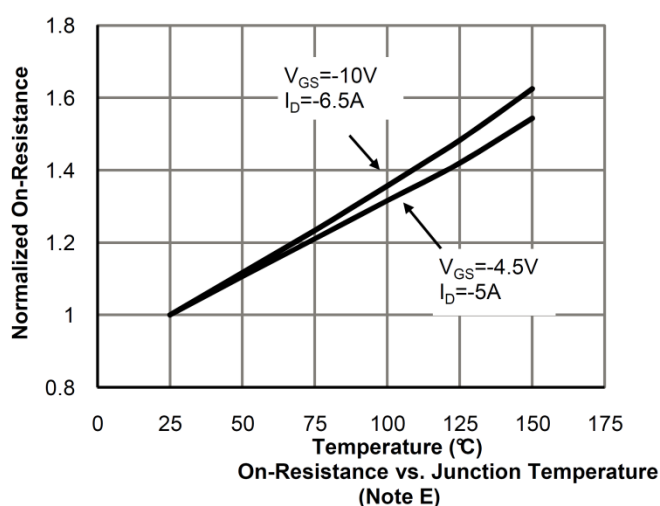
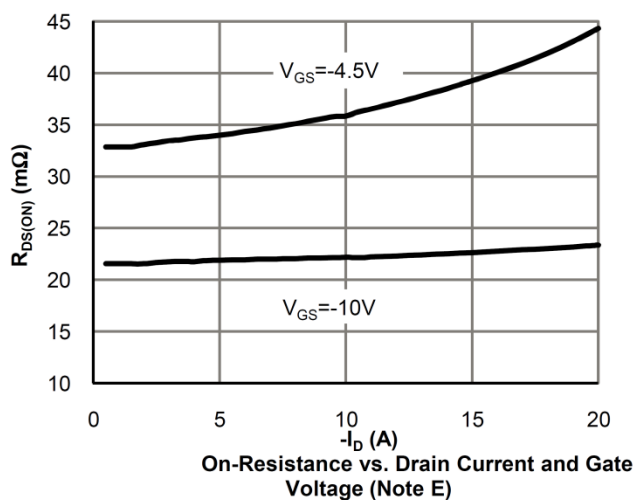
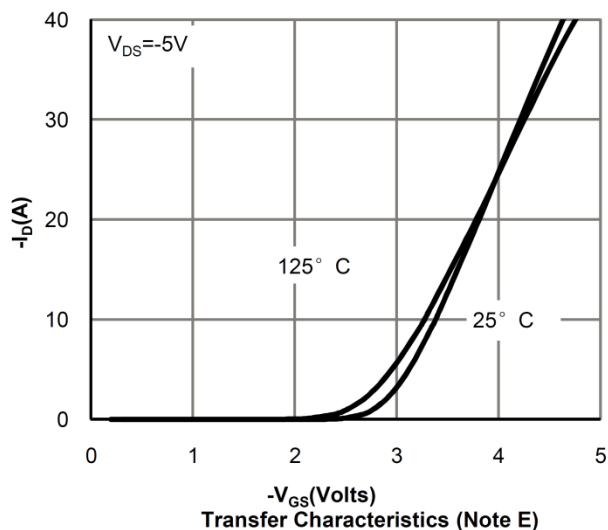
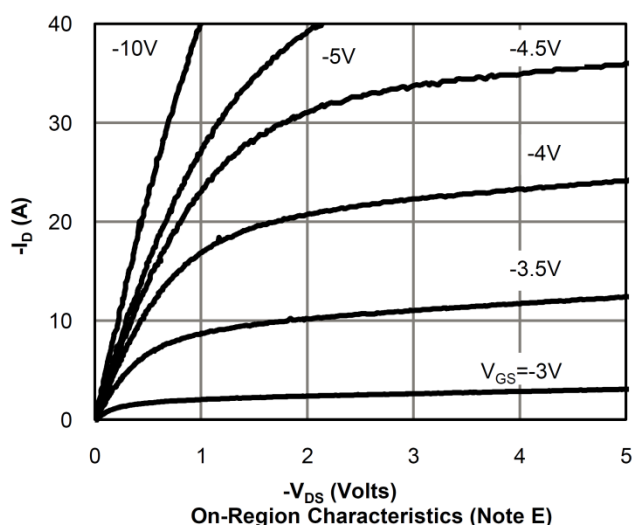
N-Channel Typical Characteristics

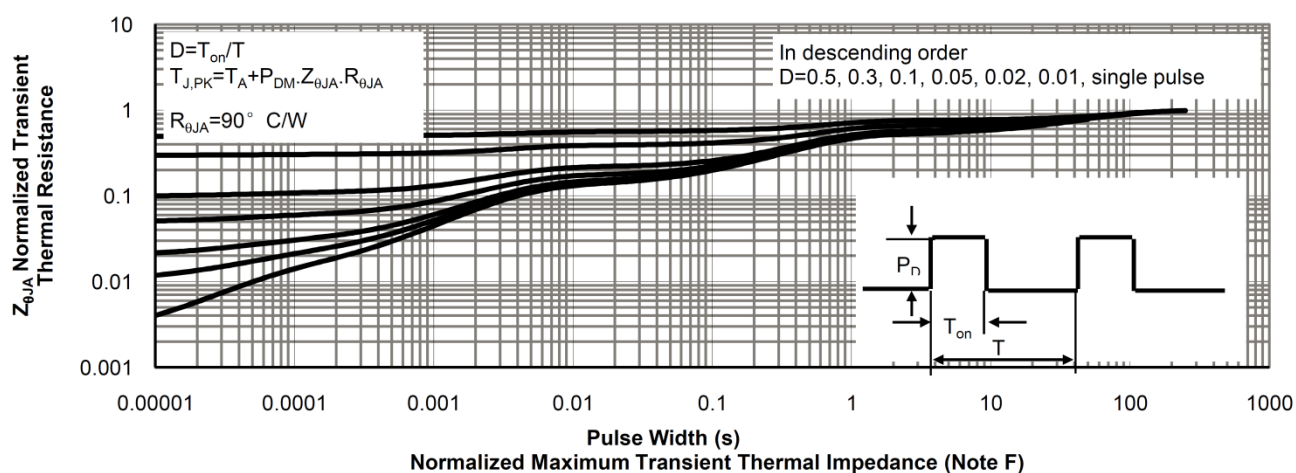
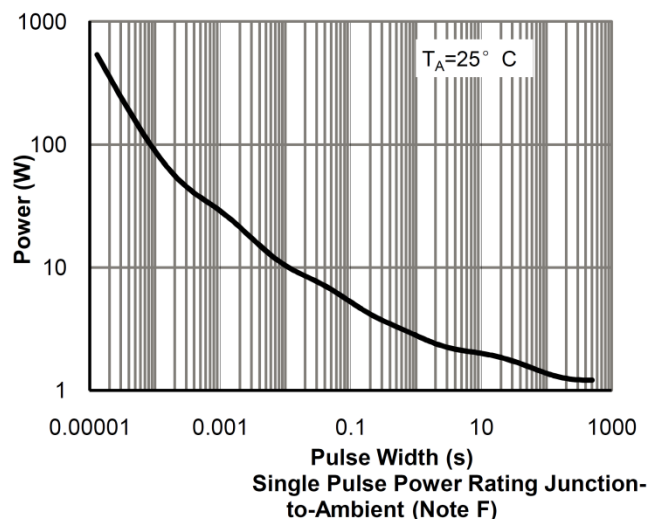
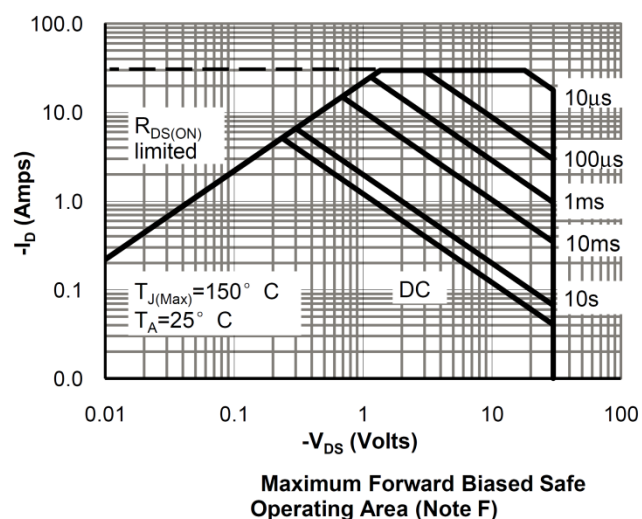
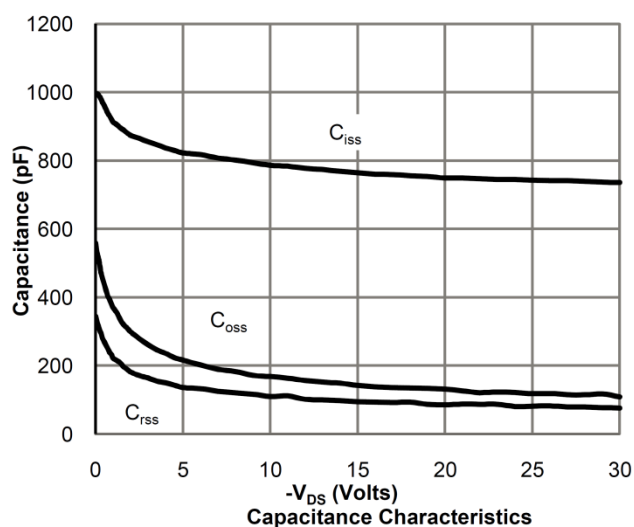
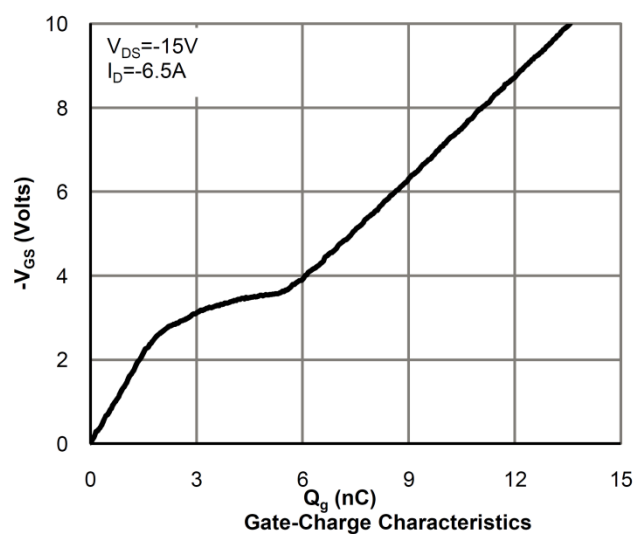






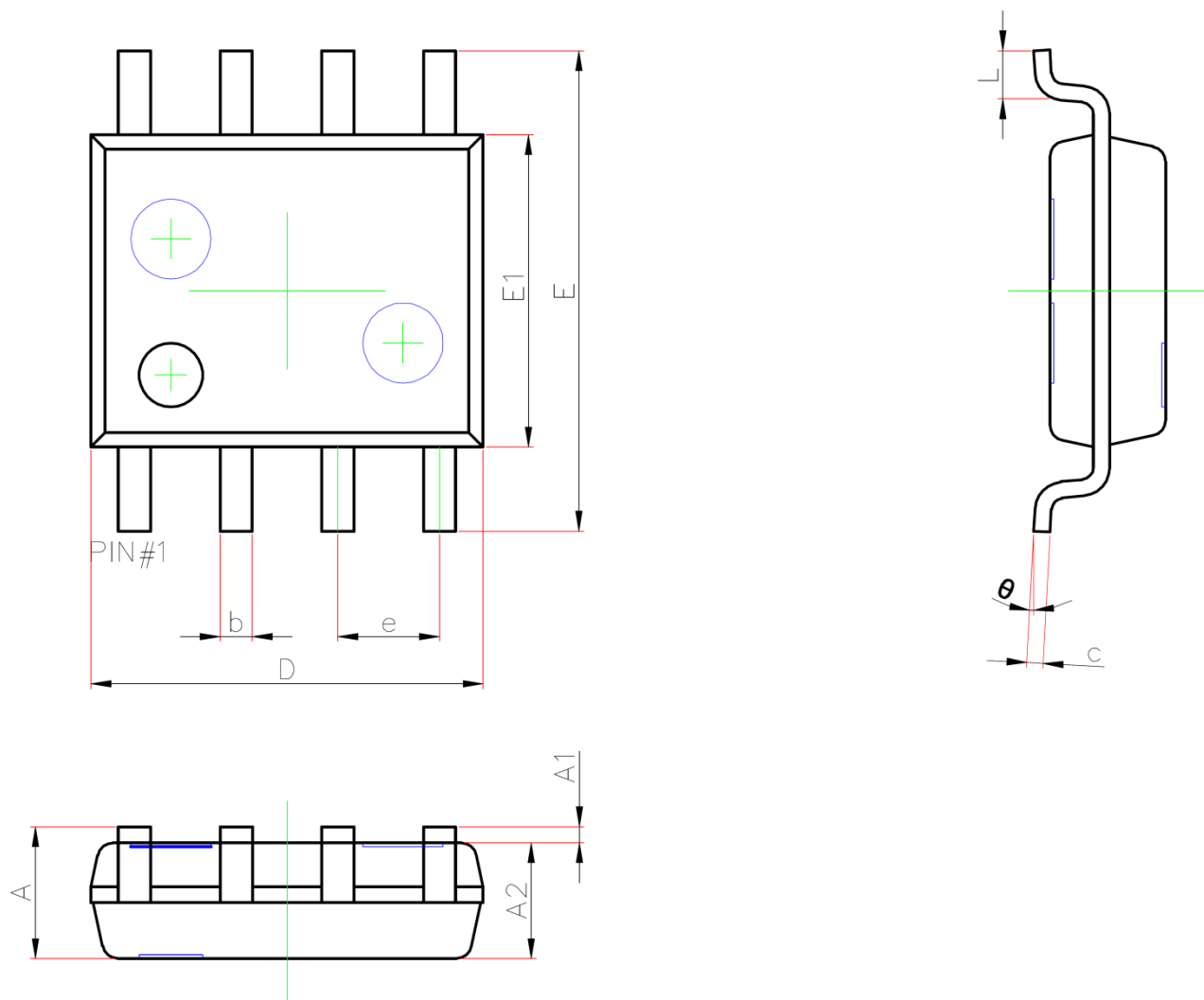
P-Channel Typical Characteristics







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°