

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	

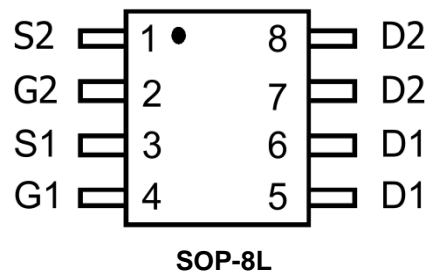
Feature

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

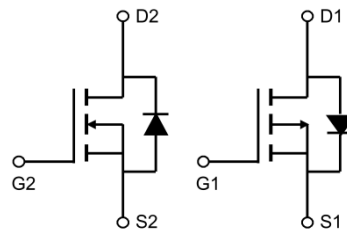
Application

- Load Switch for Portable Devices
- Battery Switch

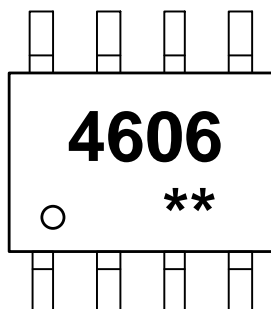
Package



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≤10s)	I _D	6	-6	A
Power Dissipation(t≤10s)	P _D	2	2	W
Thermal Resistance from Junction to Ambient(t≤10s)	R _{θJA}	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}	V _{GS} = 0V, I _D = 250μA	30			V
Zero gate voltage drain current	I _{DSS}	V _{DS} = 30V, V _{GS} = 0V			1	μA
Gate-body leakage current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			±0.1	μA
Gate threshold voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	1.0	1.5	2.2	V
Drain-source on-resistance ¹⁾	R _{DS(on)}	V _{GS} = 10V, I _D = 1A		18	30	mΩ
		V _{GS} = 4.5V, I _D = 1A		24	42	
Dynamic characteristics²⁾						
Input Capacitance	C _{iss}	V _{DS} =15V, V _{GS} =0V, f=1MHz		416		pF
Output Capacitance	C _{oss}			62		
Reverse Transfer Capacitance	C _{rss}			51		
Switching Characteristics						
Total gate charge@4.5V	Q _g	V _{DS} =20V, V _{GS} =4.5V, I _D =6A		5		nC
Gate-source charge	Q _{gs}			1.11		
Gate-drain charge	Q _{gd}			2.61		
Turn-on delay time	t _{d(on)}	V _{DD} =12V, V _{GS} =10V, RG=3.3 ID=6A		7.7		ns
Turn-on rise time	t _r			46		
Turn-off delay time	t _{d(off)}			11		
Turn-off fall time	t _f			3.6		
Diode Characteristics						
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =1A, T _J =25°C			1.2	V

Notes:

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

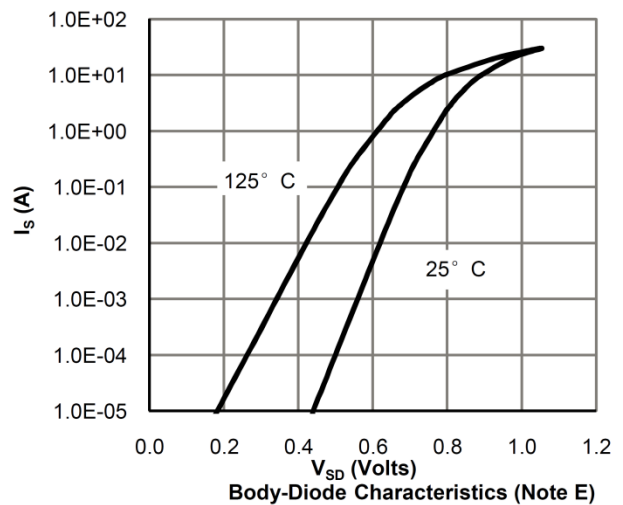
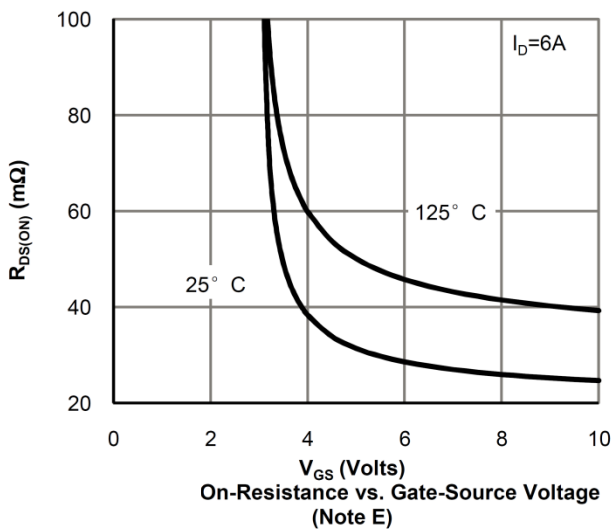
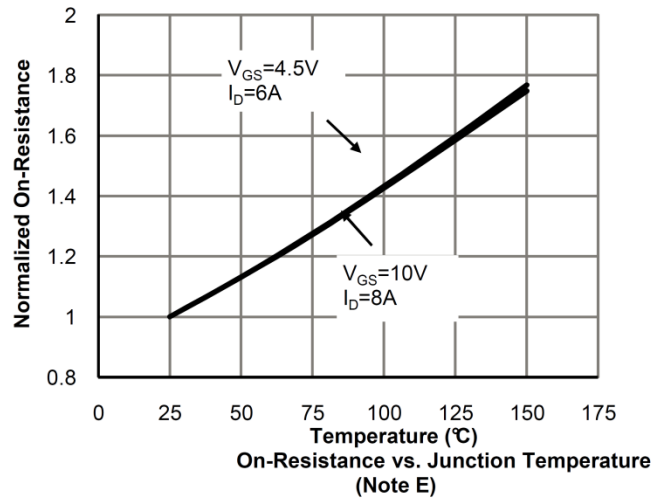
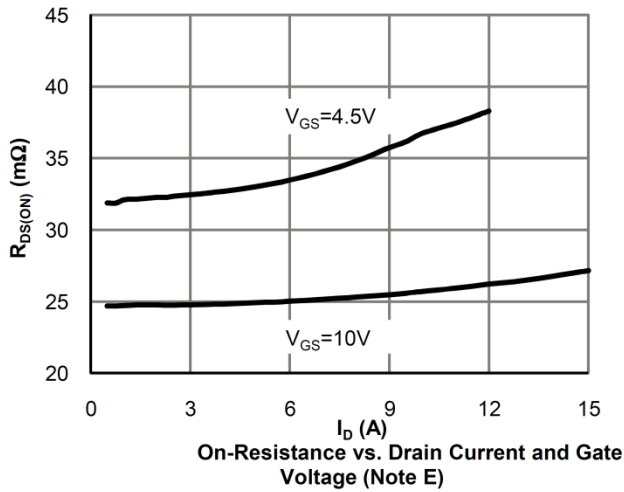
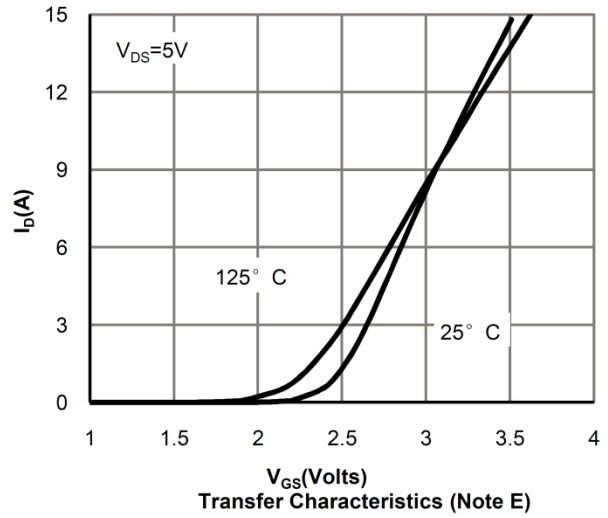
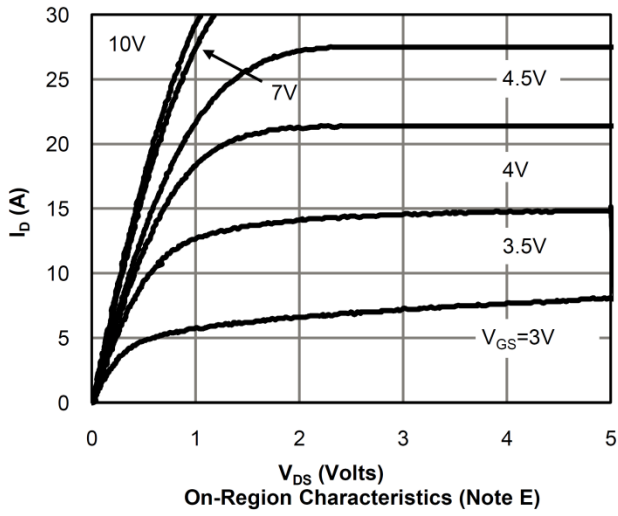
P-Channel Electrical characteristics (T_A=25 °C, unless otherwise noted)

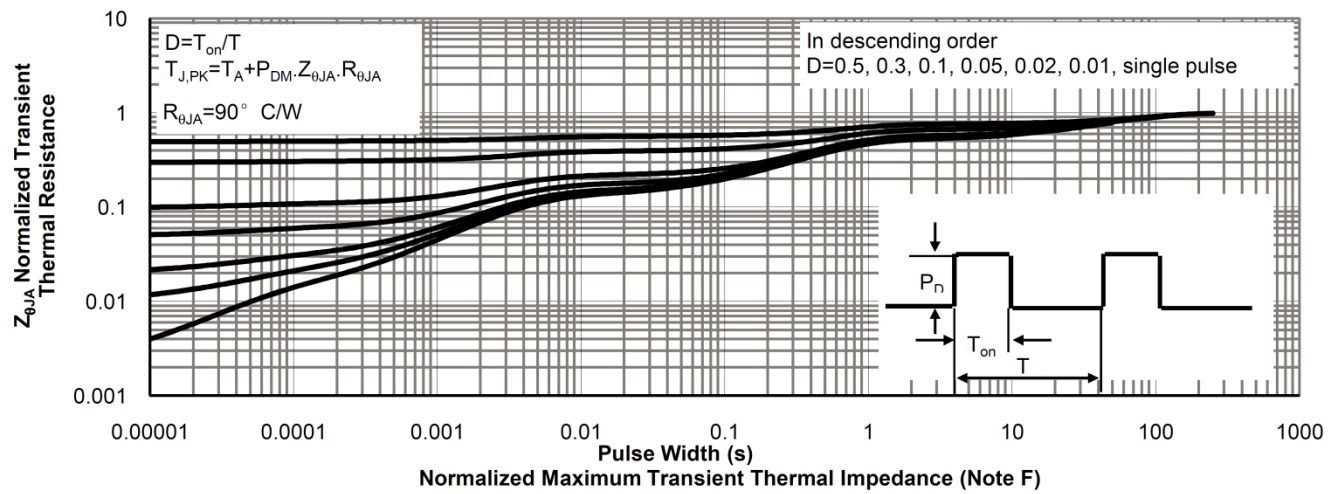
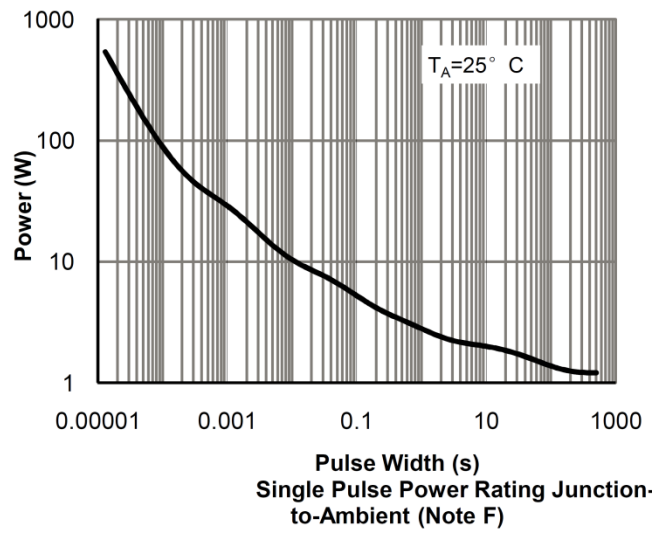
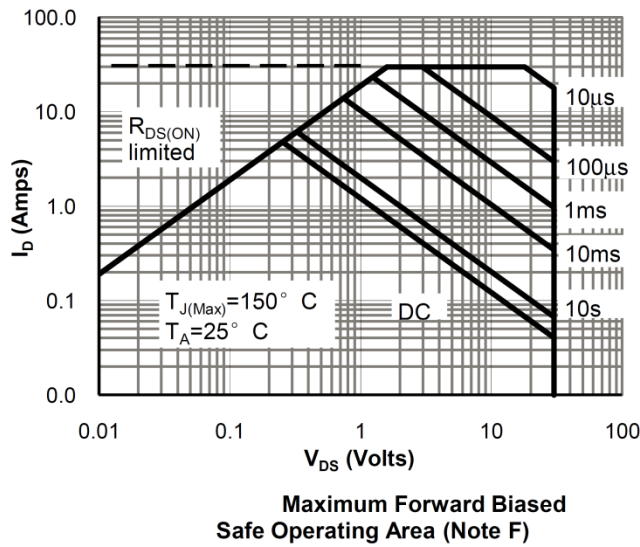
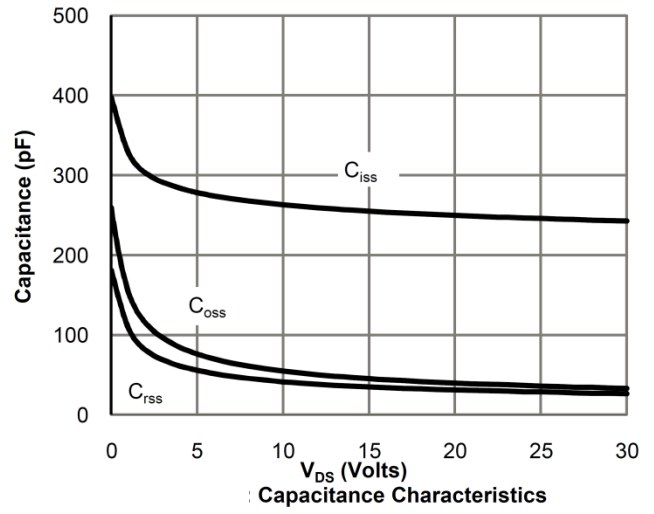
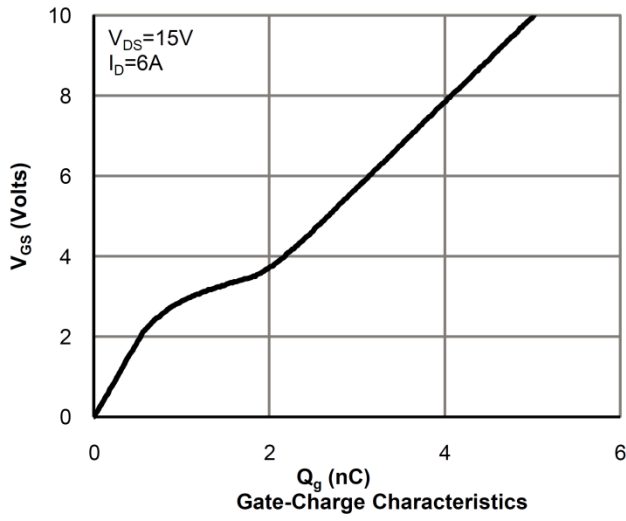
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = -250μA	-30			V
Zero gate voltage drain current	I _{DSS}	V _{DS} = -30V, V _{GS} = 0V			1	μA
Gate-body leakage current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			±0.1	μA
Gate threshold voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-1.0	-1.5	-2.2	V
Drain-source on-resistance ¹⁾	R _{DS(on)}	V _{GS} = -10V, I _D = -1A		30	35	mΩ
		V _{GS} = -4.5V, I _D = -1A		45	65	
Dynamic characteristics²⁾						
Input Capacitance	C _{iss}	V _{DS} = -15V, V _{GS} = 0V, F = 1.0MHz		729.4		PF
Output Capacitance	C _{oss}			112.6		
Reverse Transfer Capacitance	C _{rss}			107.5		
Switching Characteristics						
Total Gate Charge	Q _g	V _{DS} = -15V, I _D = -6.5A, V _{GS} = -10V		16.6		nC
Gate-Source Charge	Q _{gs}			1.8		
Gate-Drain Charge	Q _{gd}			4.2		
Turn-on Delay Time	t _{d(on)}	V _{DD} = -15V, R _L = 2.3Ω V _{GS} = -10V, R _{GEN} = 6Ω		7.5		nS
Turn-on Rise Time	t _r			5.5		
Turn-Off Delay Time	t _{d(off)}			19		
Turn-Off Fall Time	t _f			7		
Diode Characteristics						
Diode forward voltage ¹⁾	V _{SD}	I _S = -1A, V _{GS} = 0V			-1.2	V

Notes:

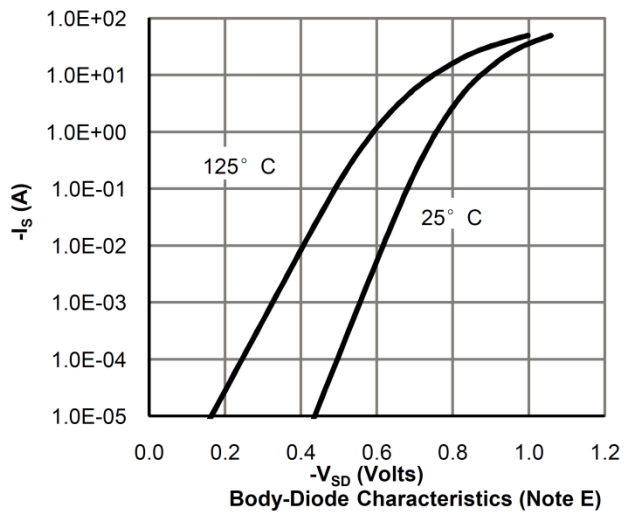
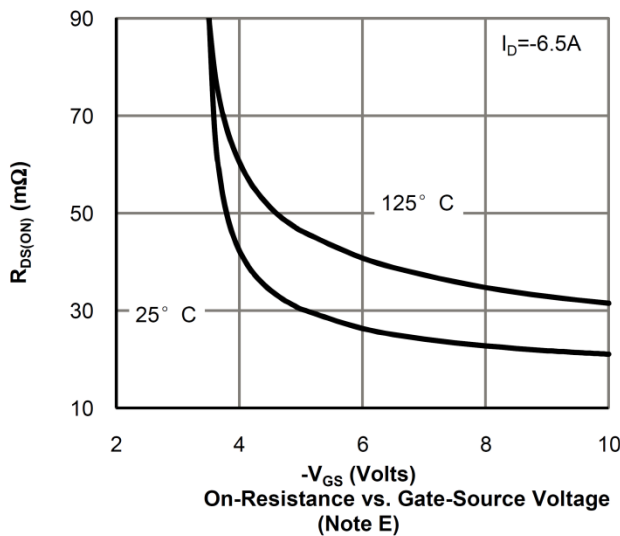
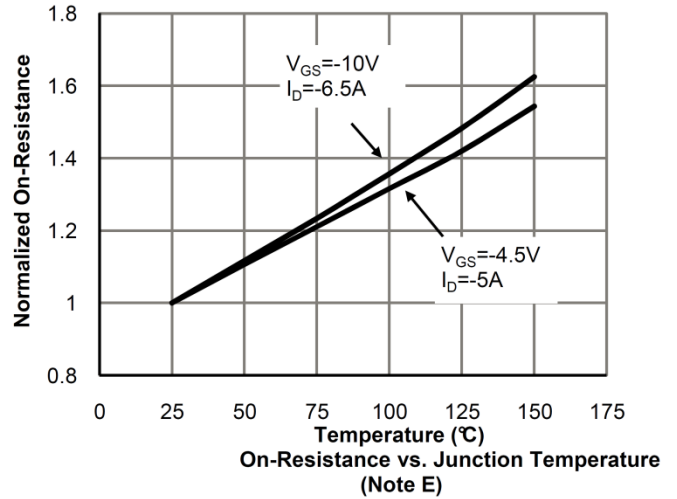
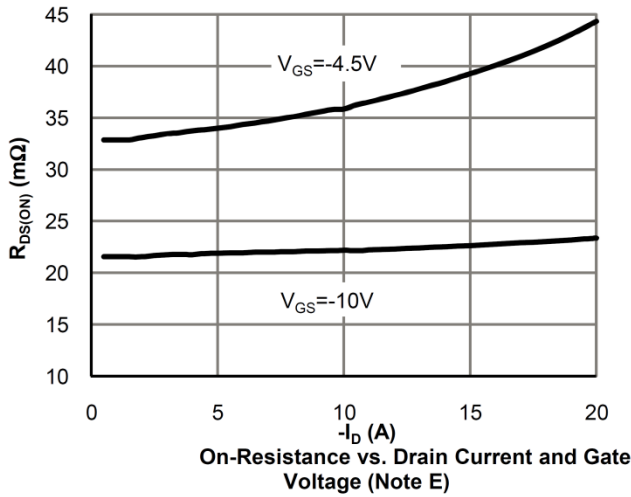
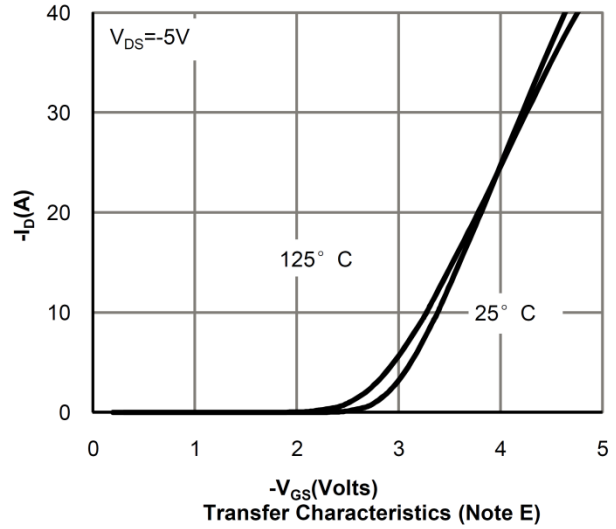
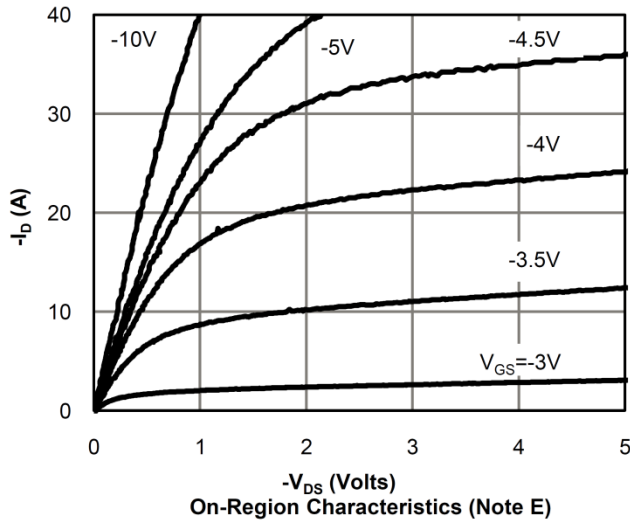
- 1) Pulse test: pulse width ≤ 300μs, duty cycle ≤ 2%.
- 2) Guaranteed by design, not subject to production testing.

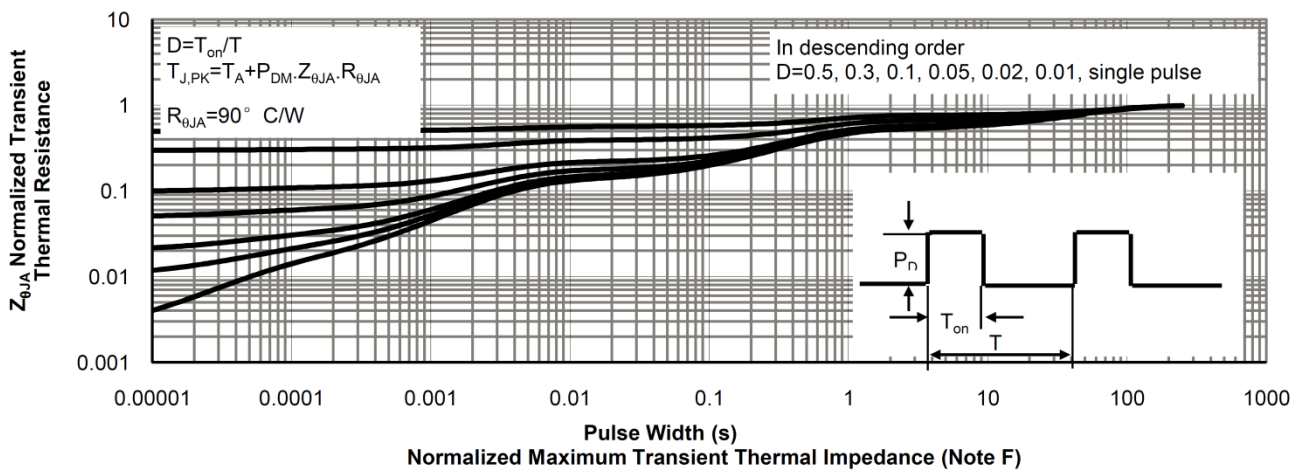
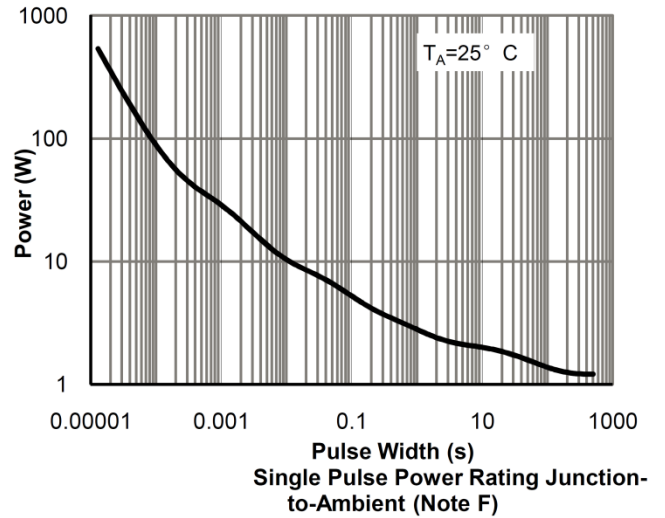
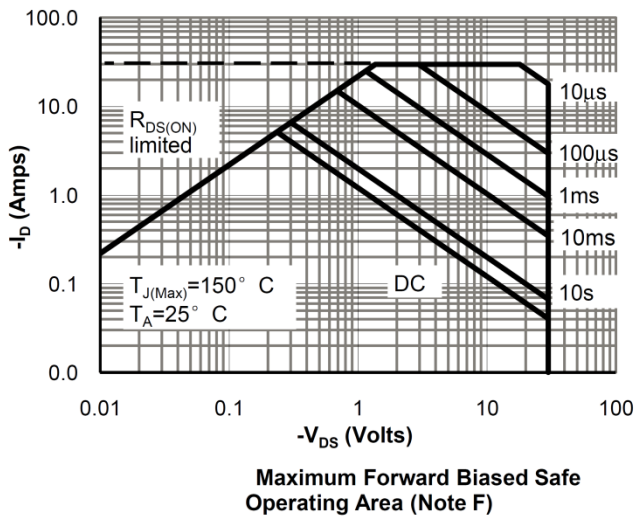
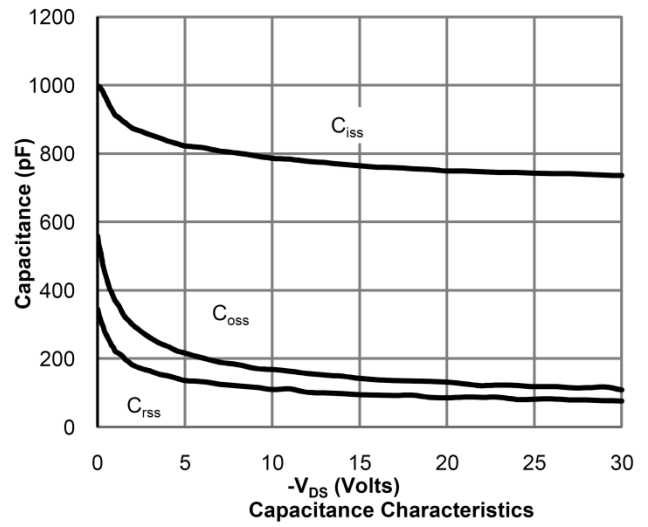
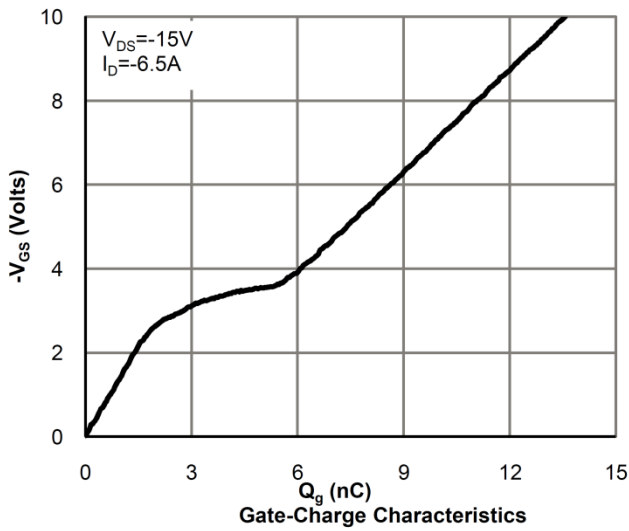
N-Channel Typical Characteristics





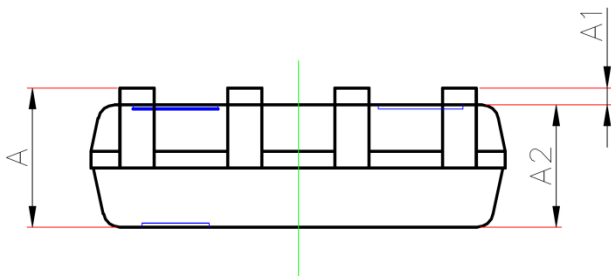
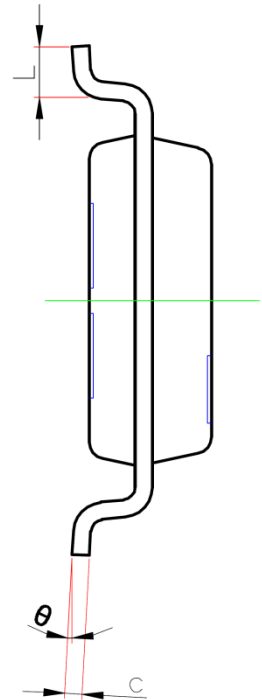
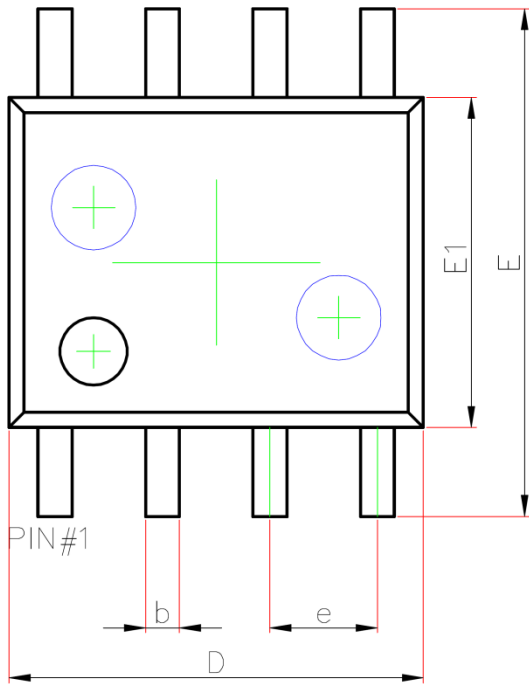
P-Channel Typical Characteristics







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°

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