

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
30V	30mΩ@10V	6A
	42mΩ@4.5V	

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
-30V	30mΩ@-10V	-6.5A
	45mΩ@-4.5V	

Feature

- Advanced trench process technology
- High Density Cell Design For Ultra Low On-Resistance
- Surface mount package

Application

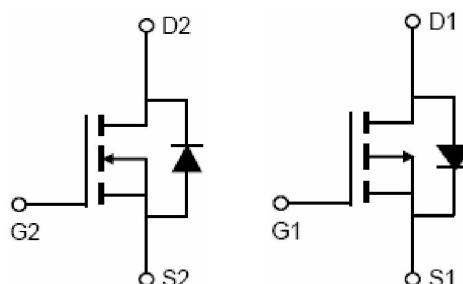
- Power Management
- DC/DC Converter
- LCD TV & Monitor Display inverter
- CCFL inverter
- LCD Display inverter

Package

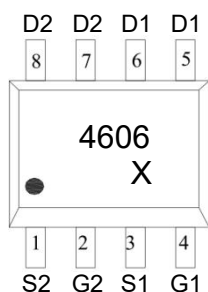


SOP-8

Circuit diagram



Marking



Absolute maximum ratings (Ta=25°C unless otherwise noted)

Parameter	Symbol	N-Channel	p-Channel	Unit
Drain-Source Voltage	V_{DS}	30	-30	V
Gate-Source Voltage	V_{GS}	± 20	± 20	V
Continuous Drain Current	I_D	6	-6.5	A
Pulsed Drain Current	I_{DM}	24	-25	A
Power Dissipation	P_D	2	2	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	62.5	62.5	$^{\circ}C/W$
Junction Temperature	T_J	150	150	$^{\circ}C$
Storage Temperature	T_{STG}	-55 ~ +150	-55 ~ +150	$^{\circ}C$

N-CH Electrical characteristics (Ta=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			±100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1.0		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 characteristics ²⁾						
Input Capacitance	C _{iss}	V _{DS} =15V,V _{GS} =0V,f =1MHz		491		pF
Output Capacitance	C _{oss}			73.8		
Reverse Transfer Capacitance	C _{rss}			60		
Total Gate Charge	Q _g	V _{DS} =15V,V _{GS} =10V,I _D =6A		10.5		nC
Gate-Source Charge	Q _{gs}			1.72		
Gate-Drain Charge	Q _{gd}			2.24		
Turn-on delay time	t _{d(on)}	V _{DD} =15V,V _{GS} =10V , I _D =1A,R _{GEN} =3Ω,R _L =2.5Ω		2.64		nS
Turn-on rise time	t _r			21.3		
Turn-off delay time	t _{d(off)}			16.3		
Turn-off fall time	t _f			17.6		
Source-Drain Diode characteristics						
Diode Forward voltage	V _{DS}	V _{GS} =0V, I _S =1A			1.2	V

P-CH 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			±100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-1.0		-2.2	V
Drain-source on-resistance ¹⁾	R _{DS(on)}	V _{GS} = -10V, I _D = -1A		24	30	mΩ
		V _{GS} = -4.5V, I _D = -1A		38	45	
Dynamic characteristics ²⁾						
Input Capacitance	C _{iSS}	V _{DS} = -15V, V _{GS} = 0V, f = 1MHz		632		pF
Output Capacitance	C _{oSS}			112		
Reverse Transfer Capacitance	C _{rSS}			96		
Total Gate Charge	Q _g	V _{DS} = -15V, V _{GS} = -10V, I _D = -6.5A		13.8		nC
Gate-Source Charge	Q _{gs}			2.03		
Gate-Drain Charge	Q _{gd}			3.3		
Turn-on delay time	t _{d(on)}	V _{DD} = -15V, V _{GS} = -10V, I _D = -1A, R _{GEN} = 3Ω, R _L = 2.3Ω		4.2		nS
Turn-on rise time	t _r			9.9		
Turn-off delay time	t _{d(off)}			43.9		
Turn-off fall time	t _f			23.9		
Source-Drain Diode characteristics						
Diode Forward voltage	V _{DS}	V _{GS} = 0V, I _S = -1A			-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 Electrical and Thermal Characteristics (Curves)

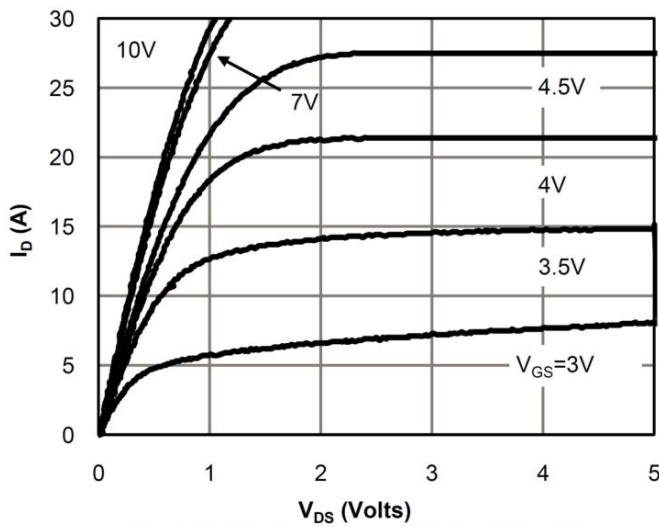


Fig 1: On-Region Characteristics (Note E)

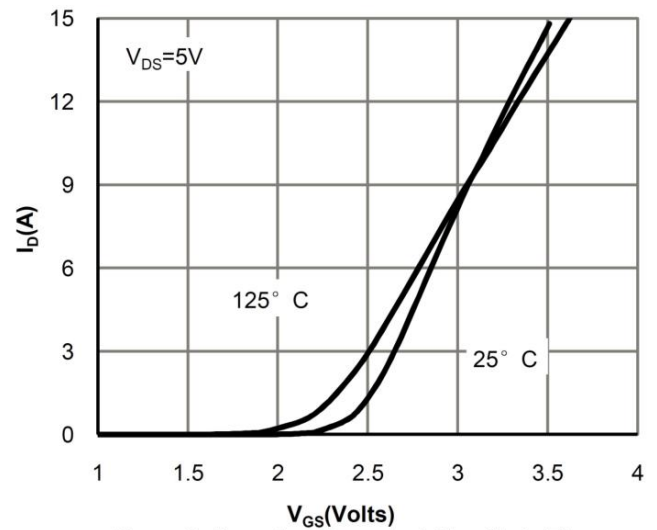


Figure 2: Transfer Characteristics (Note E)

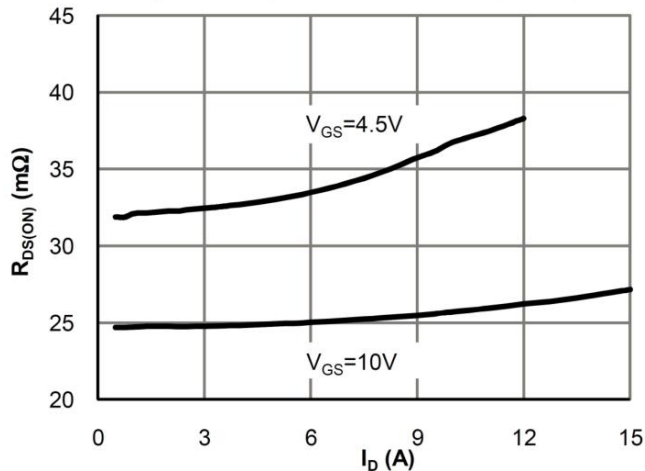


Figure 3: On-Resistance vs. Drain Current and Gate Voltage (Note E)

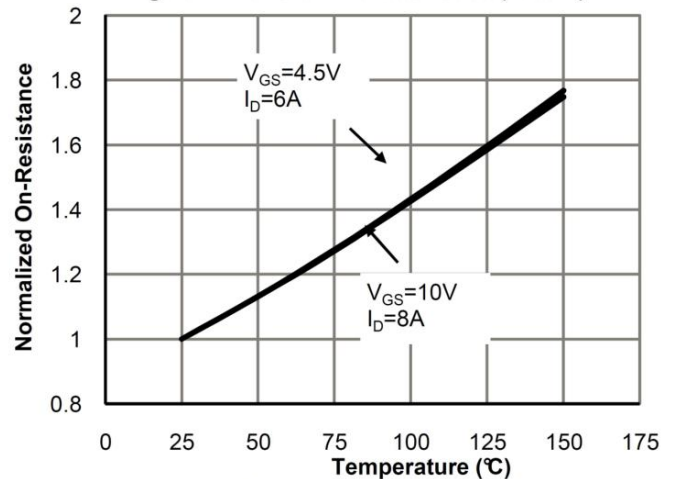


Figure 4: On-Resistance vs. Junction Temperature (Note E)

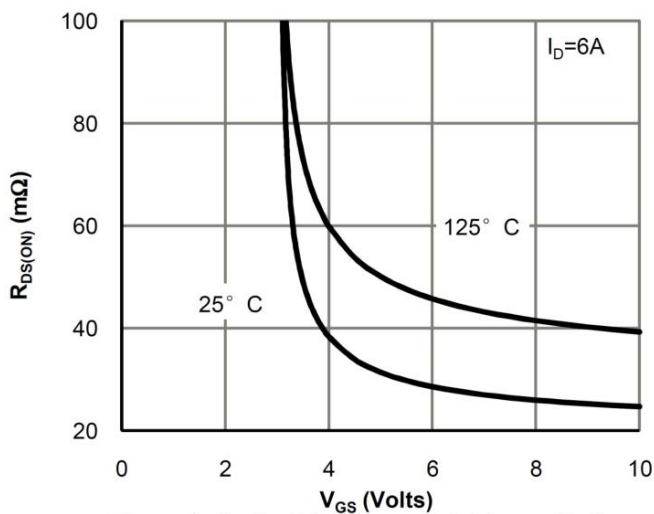


Figure 5: On-Resistance vs. Gate-Source Voltage (Note E)

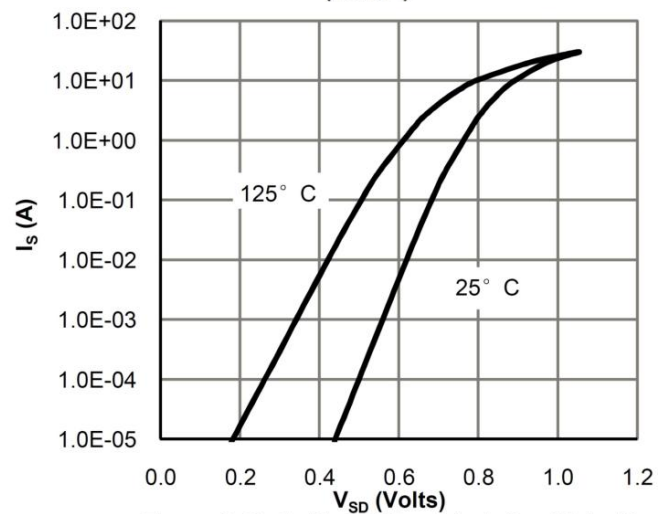


Figure 6: Body-Diode Characteristics (Note E)

N- Channel Typical Electrical and Thermal Characteristics (Curves)

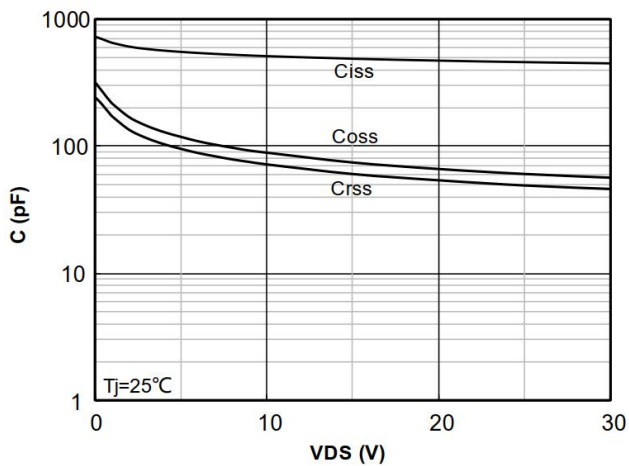


Figure 7. Capacitance Characteristics

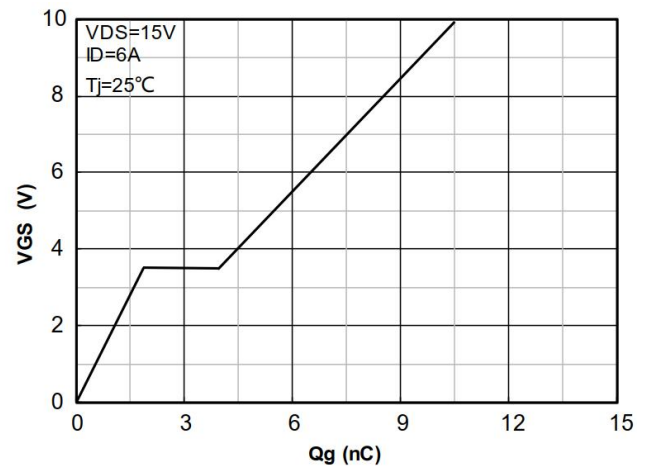


Figure 8. Gate Charge

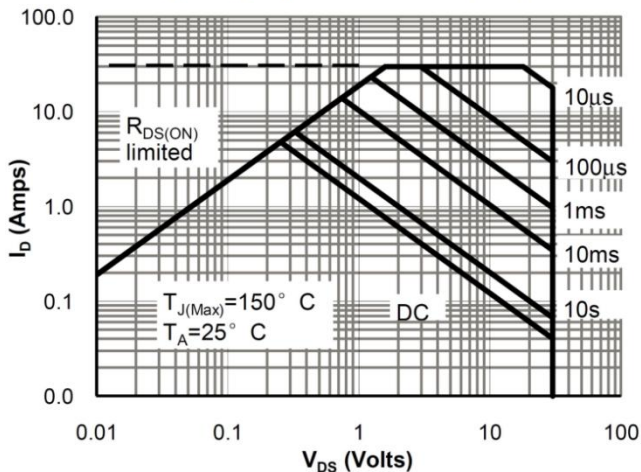


Figure 9: Maximum Forward Biased Safe Operating Area (Note F)

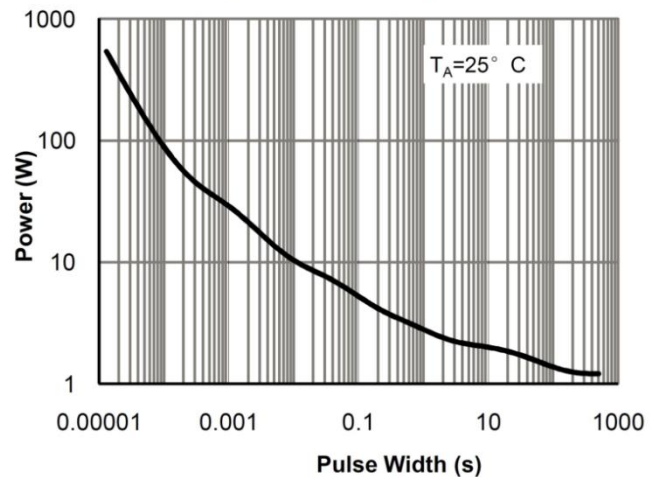


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note F)

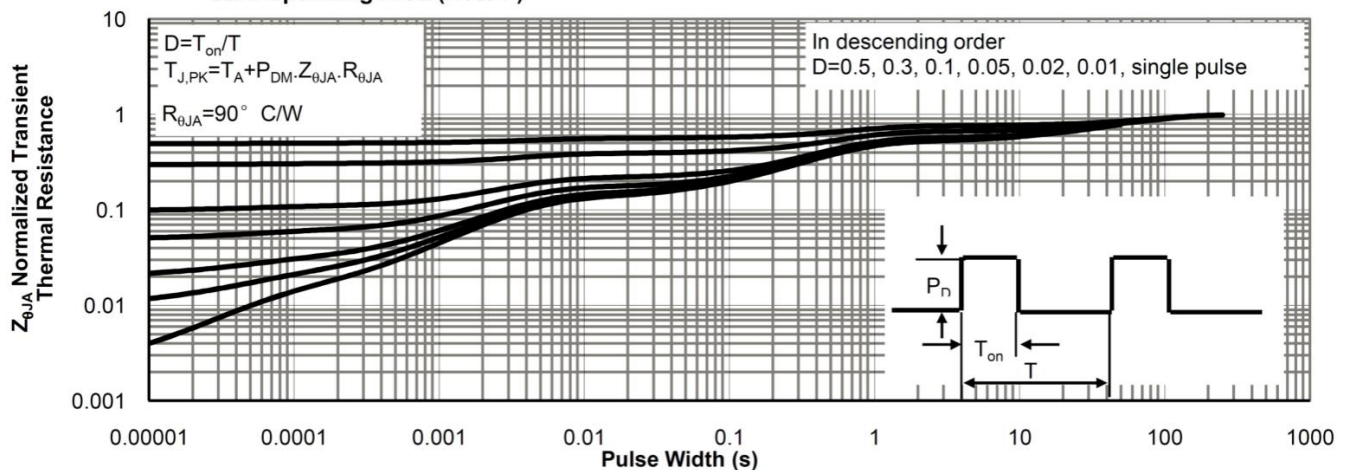


Figure 11: Normalized Maximum Transient Thermal Impedance (Note F)

P- Channel Typical Electrical and Thermal Characteristics (Curves)

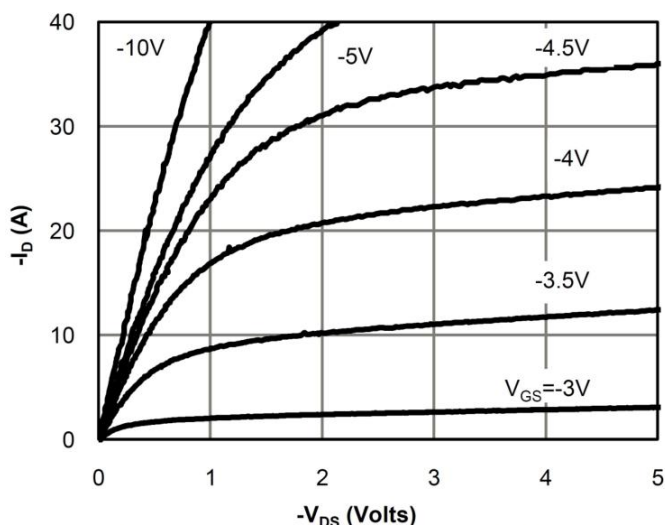


Fig 1: On-Region Characteristics (Note E)

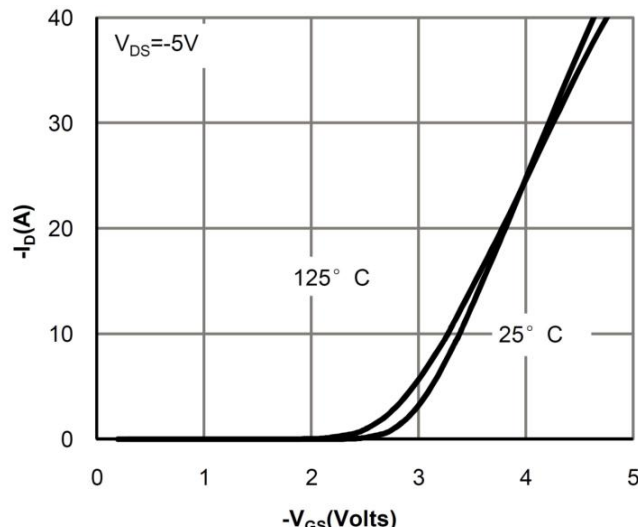


Figure 2: Transfer Characteristics (Note E)

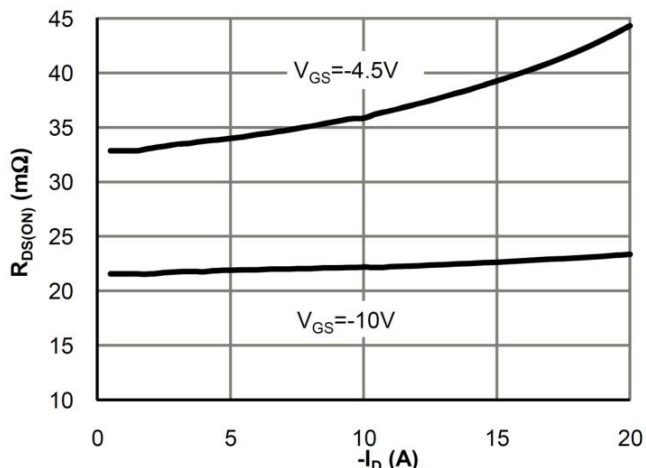


Figure 3: On-Resistance vs. Drain Current and Gate Voltage (Note E)

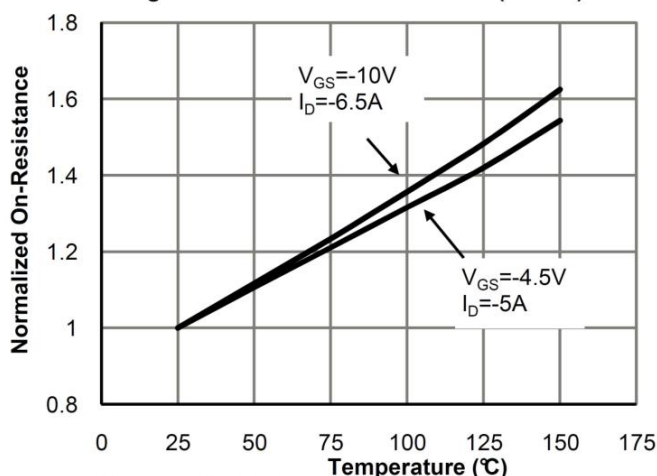


Figure 4: On-Resistance vs. Junction Temperature (Note E)

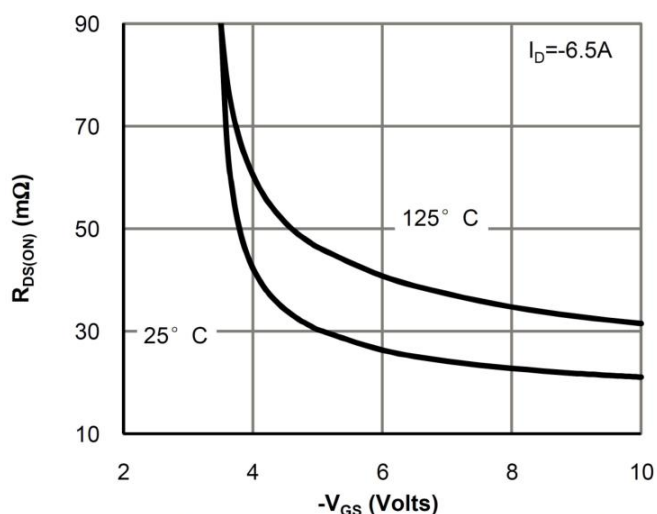


Figure 5: On-Resistance vs. Gate-Source Voltage (Note E)

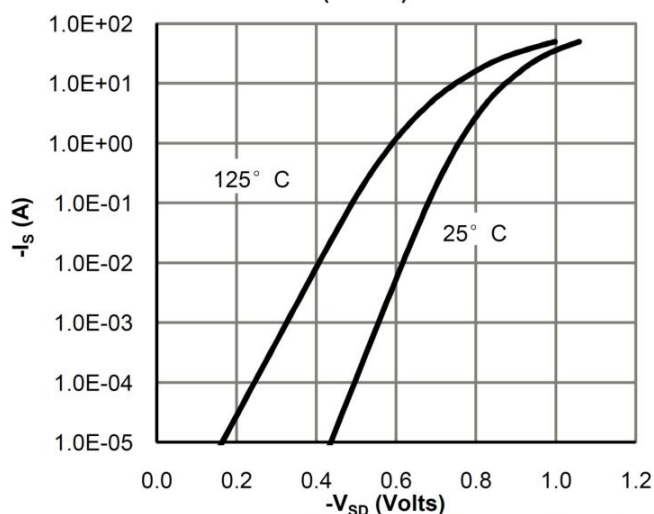


Figure 6: Body-Diode Characteristics (Note E)

P- Channel Typical Electrical and Thermal Characteristics (Curves)

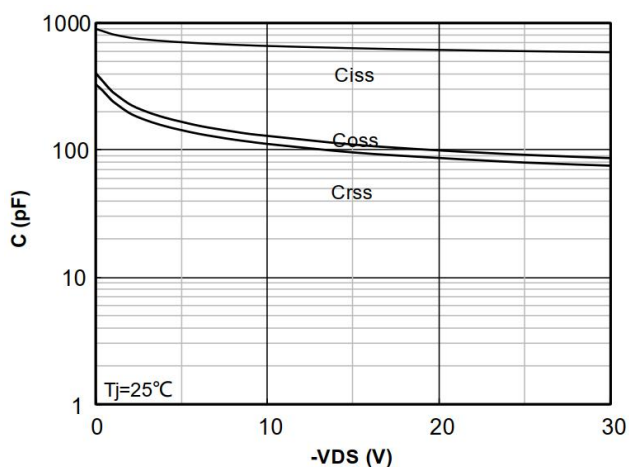


Figure 7. Capacitance Characteristics

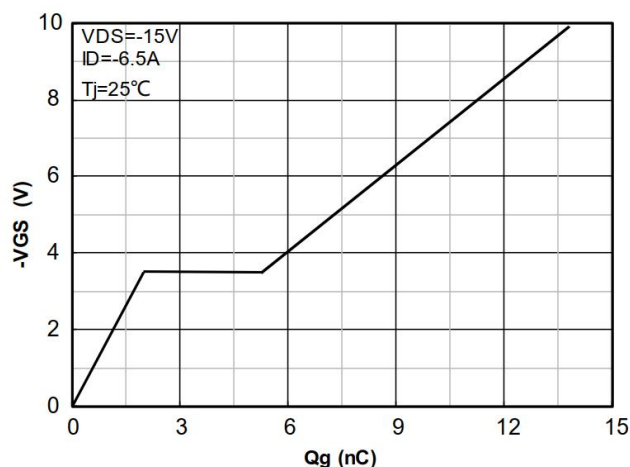


Figure 8. Gate Charge

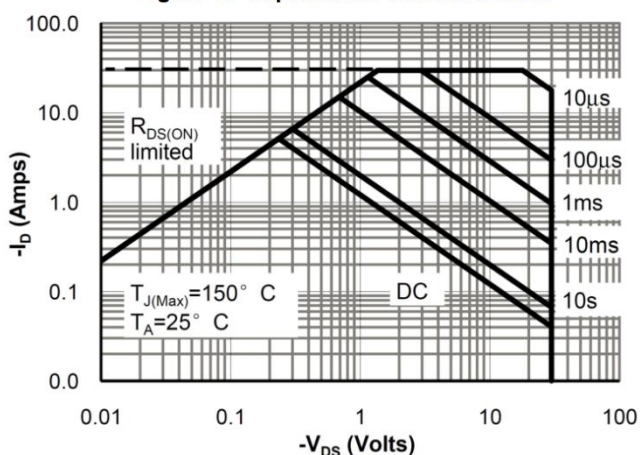


Figure 9: Maximum Forward Biased Safe Operating Area (Note F)

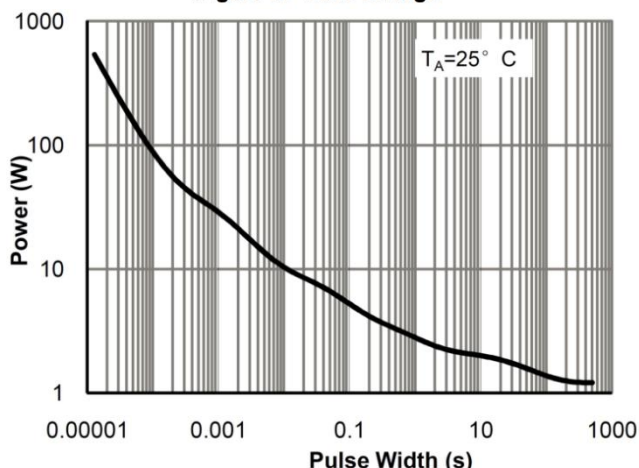


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note F)

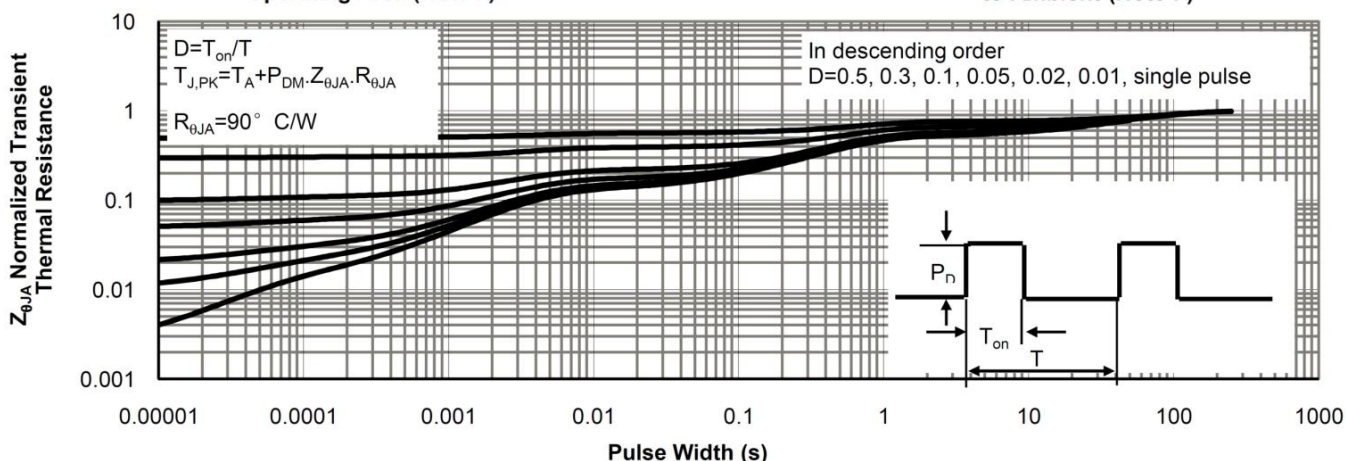
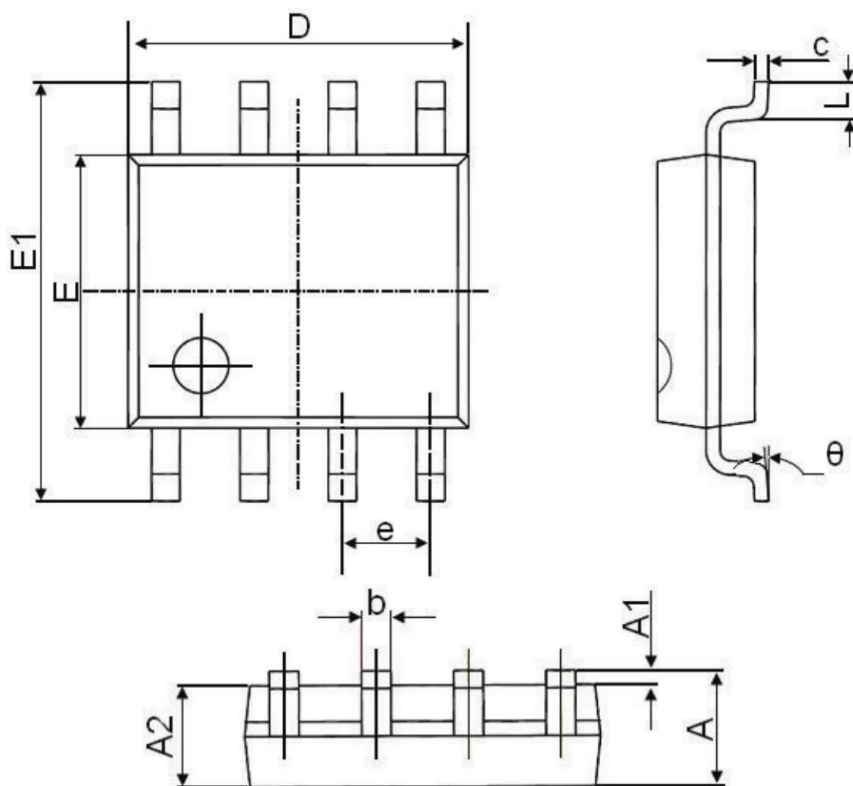


Figure 11: Normalized Maximum Transient Thermal Impedance (Note F)

SOP-8 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.200	1.550	0.047	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.006	0.010
D	4.700	5.100	0.185	0.200
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270(BSC)		0.050(BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°