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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

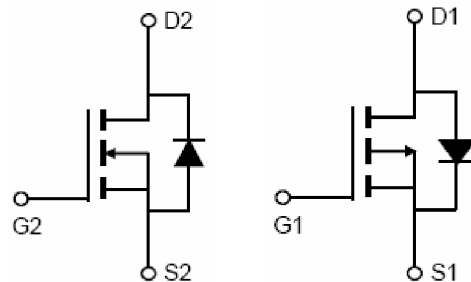- Power Management
- DC/DC Converter
- LCD TV & Monitor Display inverter
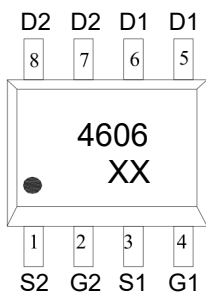- CCFL inverter
- LCD Display inverter

Package

SOP-8

Circuit diagram

Marking

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Absolute maximum ratings (Ta=25℃ 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	℃/W
Junction Temperature	T_J	150	150	℃
Storage Temperature	T_{STG}	-55 ~ +150	-55 ~ +150	℃

N-CH Electrical characteristics (T_A=25 ºC, 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}				310	pF
Output Capacitance	C_{oss}	V_{DS} =15V, V_{GS} =0V, f =1MHz			60	
Reverse Transfer Capacitance	C_{rss}				50	
Total Gate Charge	Q_g				6	nC
Gate-Source Charge	Q_{gs}	V_{DS} =15V, V_{GS} =10V, I_D =6A		0.85		
Gate-Drain Charge	Q_{gd}			1.3		
Turn-on delay time	$t_{d(on)}$			4.5		nS
Turn-on rise time	t_r	V_{DD}=15V, V_{GS}=10V , I_D =1A, R_{GEN}=3Ω, R_L=2.5Ω		2.5		
Turn-off delay time	$t_{d(off)}$			14.5		
Turn-off fall time	t_f			3.5		
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		760		pF
Output Capacitance	C$_{oss}$			140		
Reverse Transfer Capacitance	C$_{rss}$			95		
Total Gate Charge	Q$_g$	V$_{DS}$ =-15V,V$_{GS}$ =-10V, I$_D$ =-6.5A			16	nC
Gate-Source Charge	Q$_{gs}$			2.5		
Gate-Drain Charge	Q$_{gd}$			3.2		
Turn-on delay time	t$_{d(on)}$	V$_{DD}$=-15V,V$_{GS}$=-10V, I$_D$ =-1A,R$_{GEN}$=3Ω,R$_L$=2.3Ω		8		nS
Turn-on rise time	t$_r$			6		
Turn-off delay time	t$_{d(off)}$			17		
Turn-off fall time	t$_f$			5		
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.

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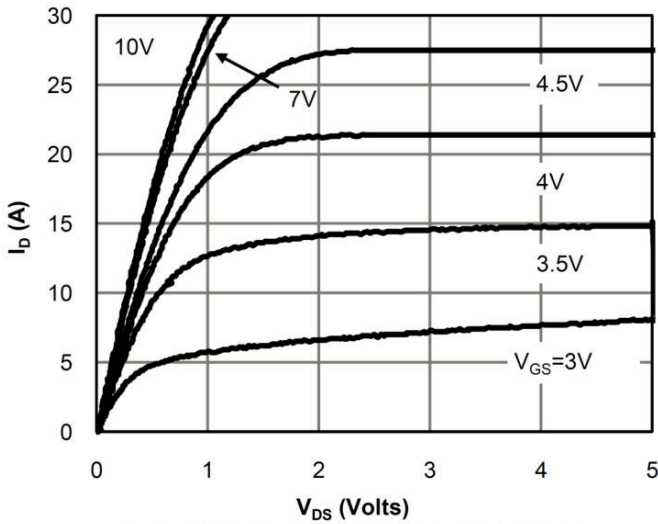## N- Channel Typical Electrical and Thermal Characteristics (Curves)
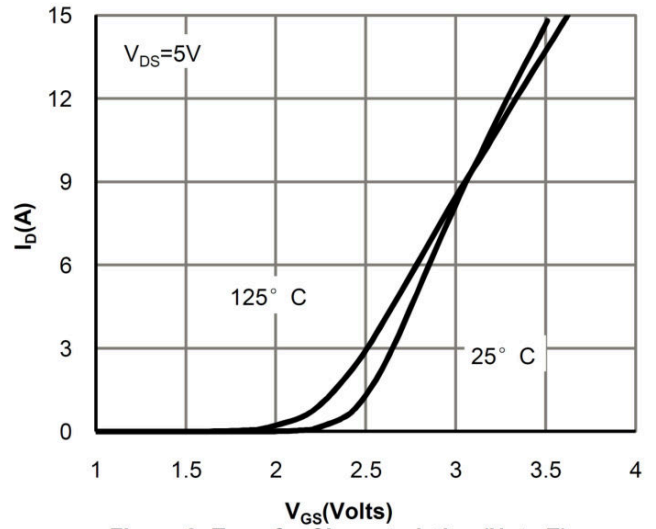
Fig 1: On-Region Characteristics (Note E)

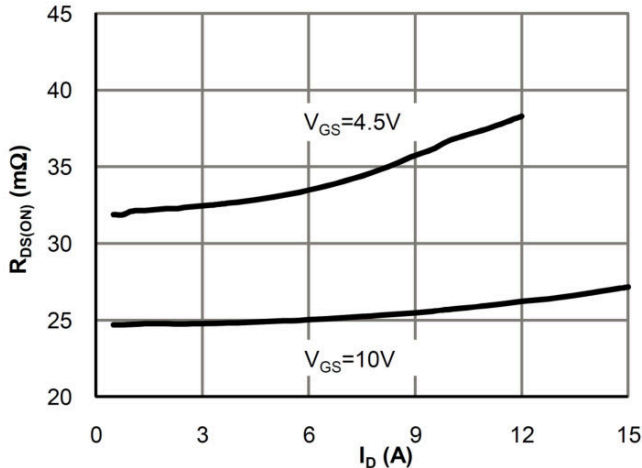Figure 2: Transfer Characteristics (Note E)

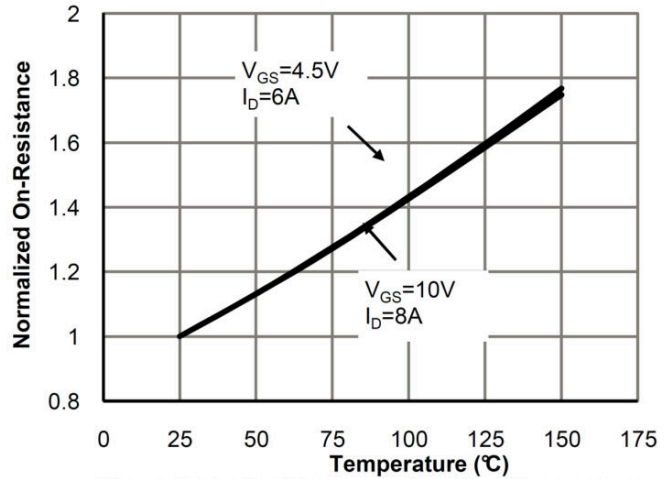Figure 3: On-Resistance vs. Drain Current and Gate Voltage (Note E)

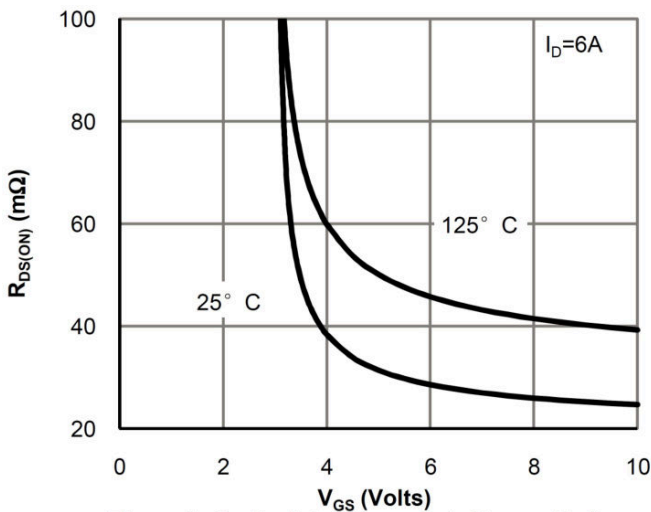Figure 4: On-Resistance vs. Junction Temperature (Note E)

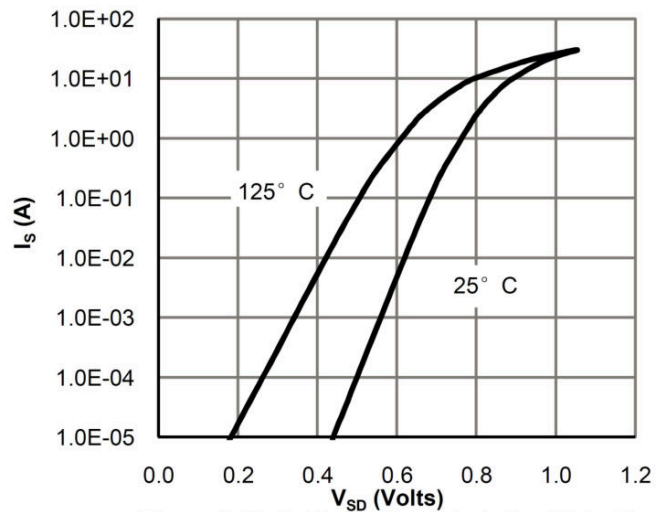Figure 5: On-Resistance vs. Gate-Source Voltage (Note E)

Figure 6: Body-Diode Characteristics (Note E)

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N- Channel Typical Electrical and Thermal Characteristics (Curves)

Figure 7: Gate-Charge Characteristics

Figure 8: Capacitance Characteristics

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

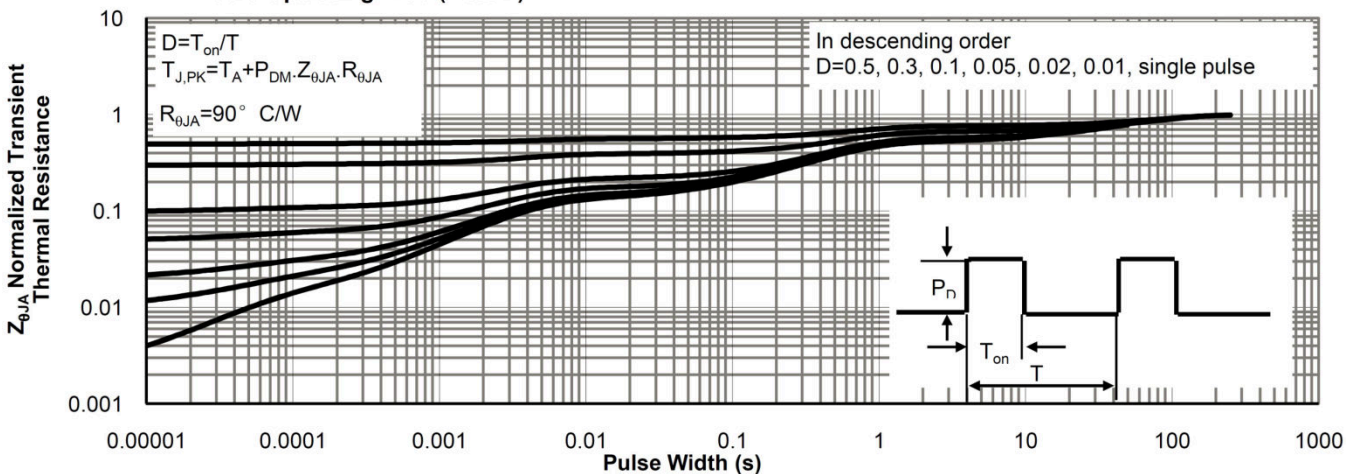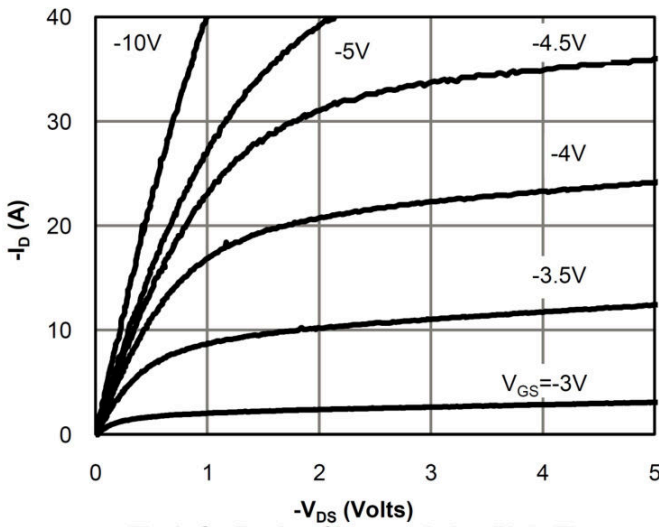Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note F)

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

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P- Channel Typical Electrical and Thermal Characteristics (Curves)

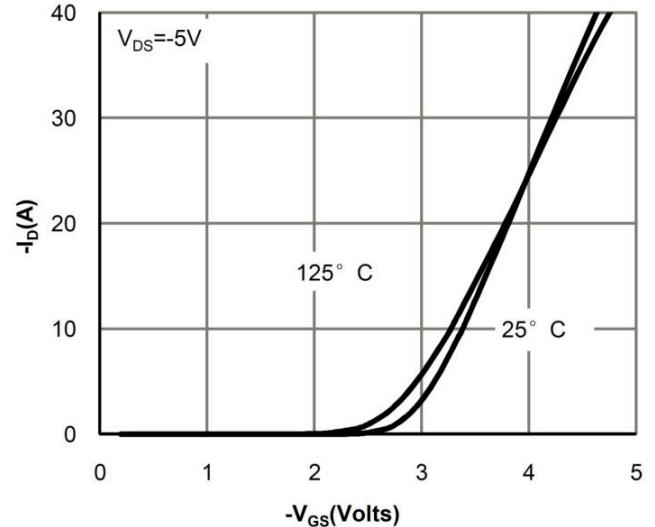Fig 1: On-Region Characteristics (Note E)

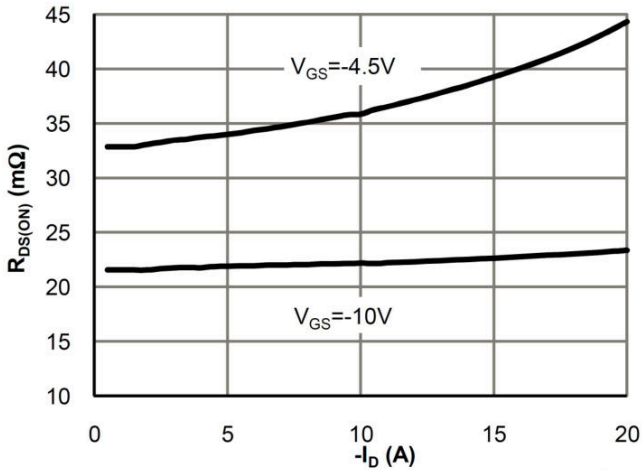Figure 2: Transfer Characteristics (Note E)

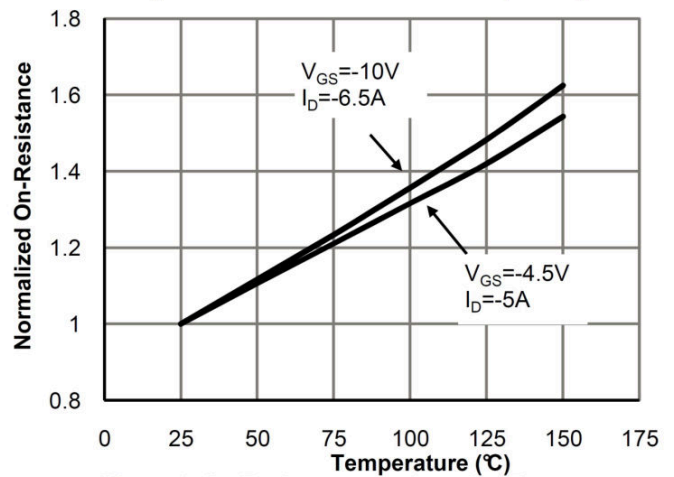Figure 3: On-Resistance vs. Drain Current and Gate Voltage (Note E)

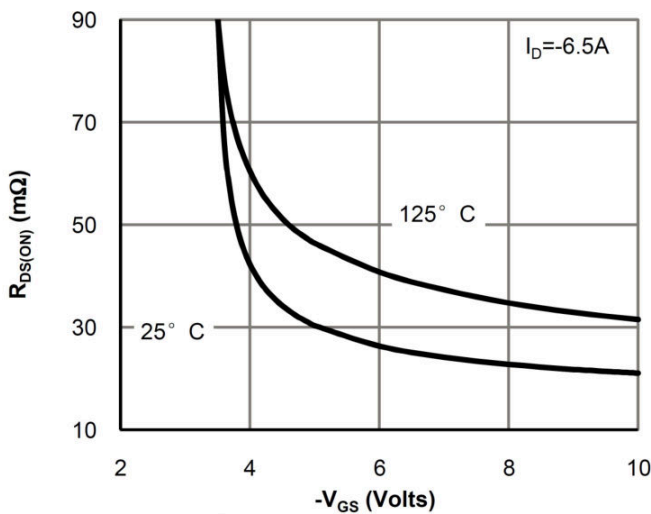
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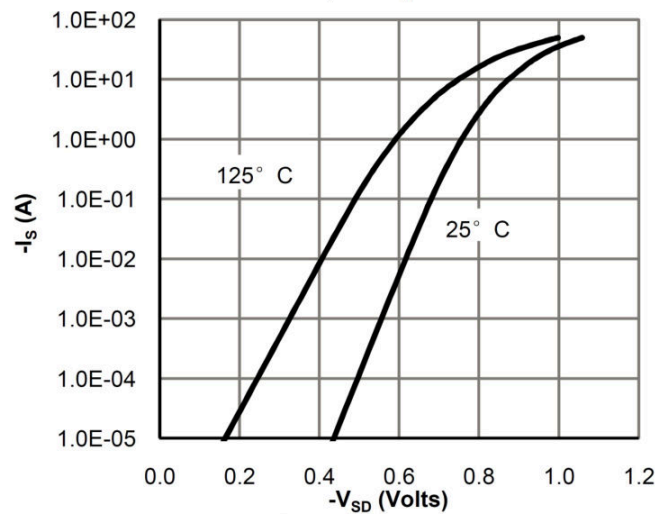
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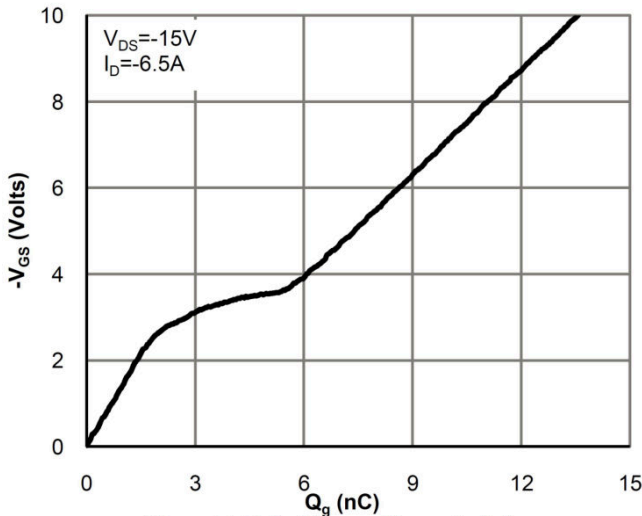## P- Channel Typical Electrical and Thermal Characteristics (Curves)

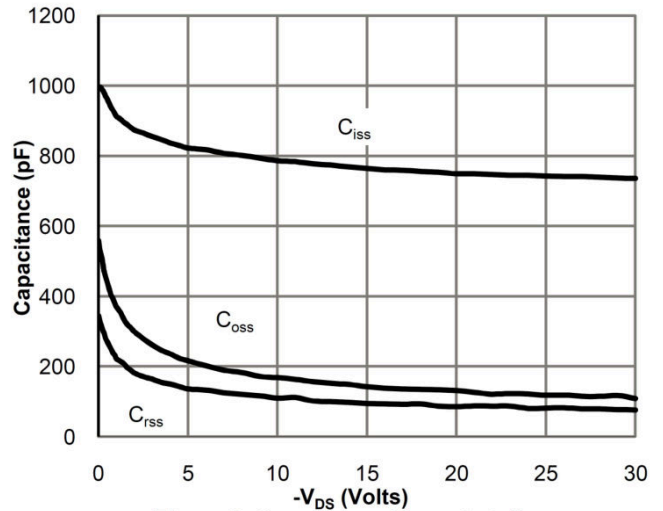Figure 7: Gate-Charge Characteristics
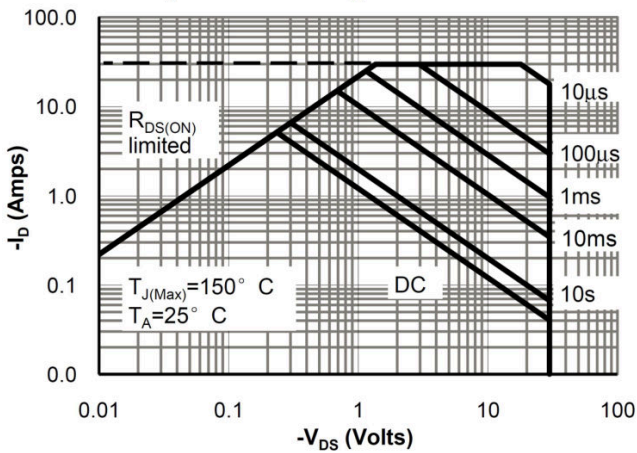

Figure 8: Capacitance Characteristics

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

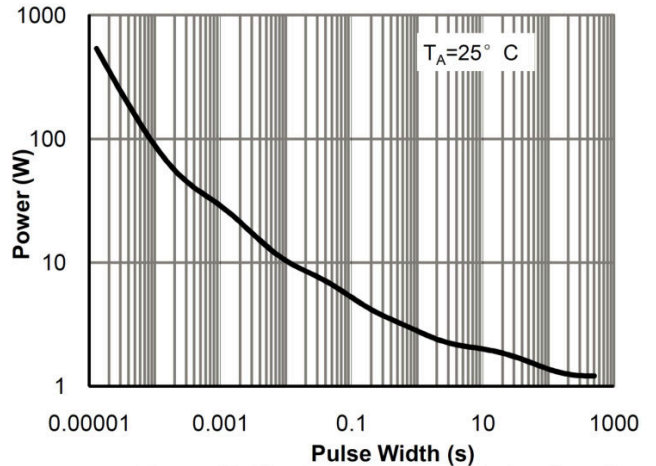
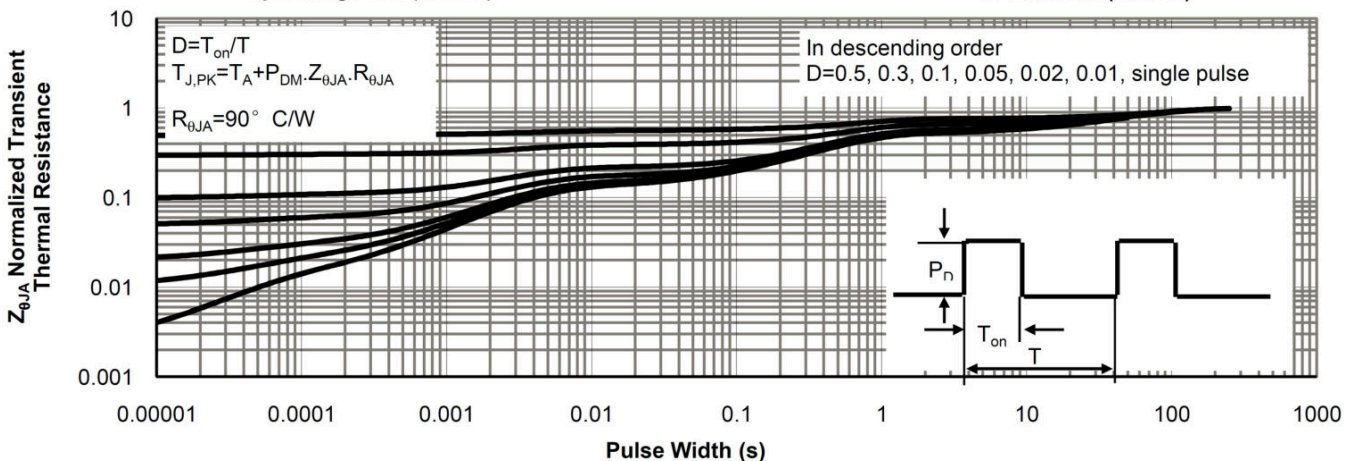Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note F)

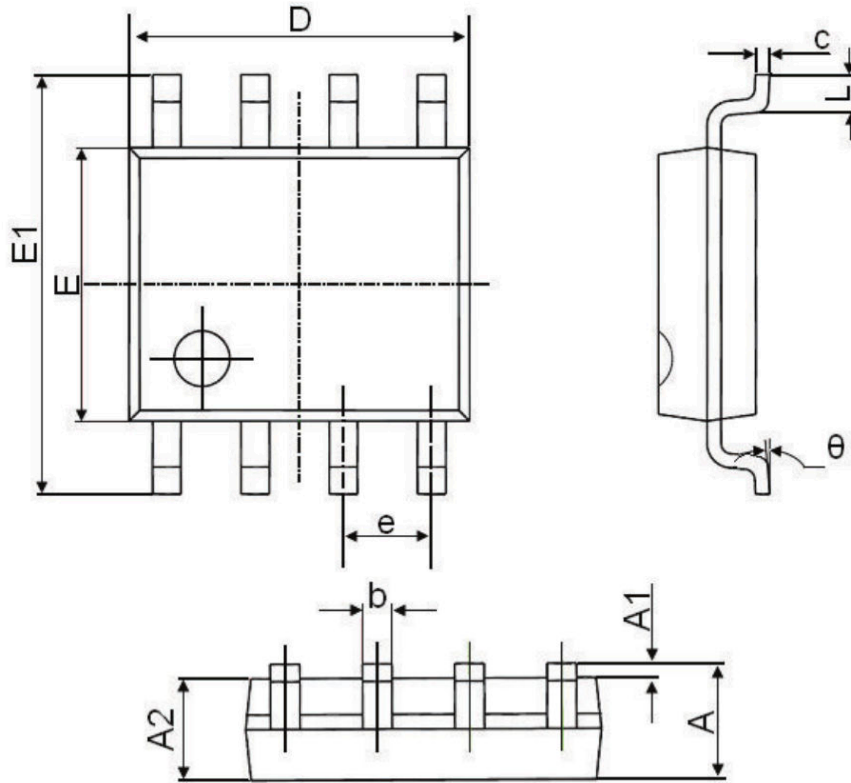Figure 11: Normalized Maximum Transient Thermal Impedance (Note F)

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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	1.350	1.550	0.053	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°

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