



产品规格书

DP4407B

Datasheet of DP4407B

深圳市德普微电子有限公司

Shenzhen Developer Microelectronics Co., Ltd.

地址：深圳市南山区高新南四道创维半导体设计大厦西座 707-710 单元

Address: Unit 7-10, 7/F., west block, Skyworth Semiconductor design Building,

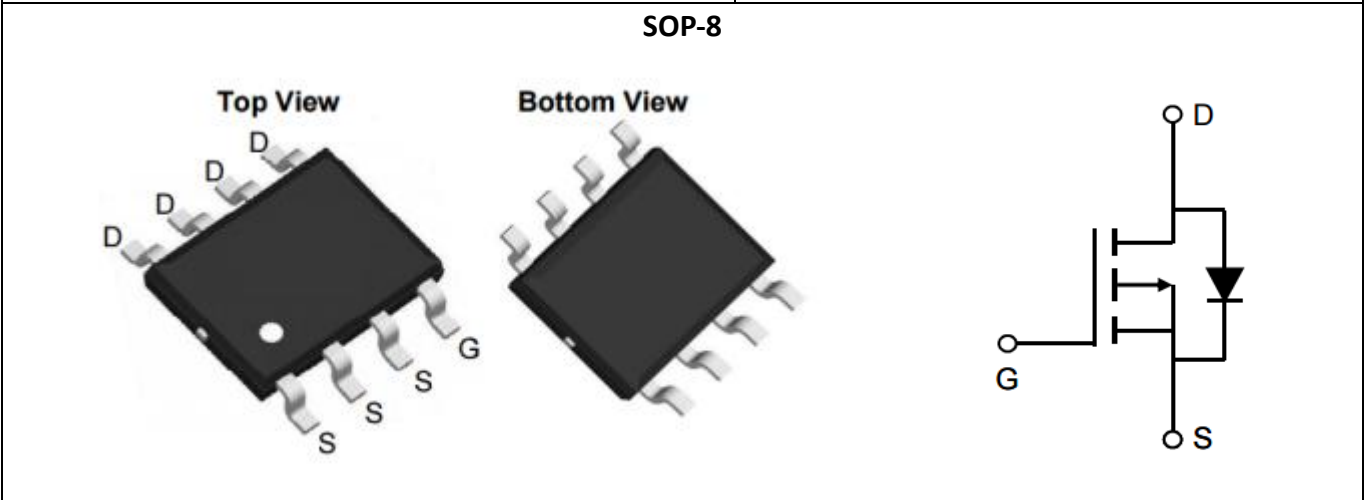
The 4th on High-tech Zone, Nanshan District, Shenzhen.



DP4407B

Single P Channel Enhancement Power

<p>General Description</p> <p>DP4407B uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge with a 25V gate rating. This device is suitable for use as a load switch or in PWM applications.</p> <p>* RoHS and Halogen-Free Complaint</p>	<p>Product Summary</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%;">V_{DS}</td> <td style="text-align: right;">-30 V</td> </tr> <tr> <td>I_D (at $V_{GS}=-20V$)</td> <td style="text-align: right;">-12A</td> </tr> <tr> <td>$R_{DS(ON)}$ (at $V_{GS} = -20V$)</td> <td style="text-align: right;">< 11mΩ</td> </tr> <tr> <td>$R_{DS(ON)}$ (at $V_{GS} = -10V$)</td> <td style="text-align: right;">< 13mΩ</td> </tr> <tr> <td>$R_{DS(ON)}$ (at $V_{GS} = -6V$)</td> <td style="text-align: right;">< 17mΩ</td> </tr> </table>	V_{DS}	-30 V	I_D (at $V_{GS}=-20V$)	-12A	$R_{DS(ON)}$ (at $V_{GS} = -20V$)	< 11m Ω	$R_{DS(ON)}$ (at $V_{GS} = -10V$)	< 13m Ω	$R_{DS(ON)}$ (at $V_{GS} = -6V$)	< 17m Ω
V_{DS}	-30 V										
I_D (at $V_{GS}=-20V$)	-12A										
$R_{DS(ON)}$ (at $V_{GS} = -20V$)	< 11m Ω										
$R_{DS(ON)}$ (at $V_{GS} = -10V$)	< 13m Ω										
$R_{DS(ON)}$ (at $V_{GS} = -6V$)	< 17m Ω										



Absolute Maximum Ratings $T_A=25^\circ C$ unless otherwise noted

Parameter	Symbol	P-Channel	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	± 25	V
Drain Current-Continuous @ $T_J=25^\circ C$	I_D	-12	A
Pulsed ^b	I_{DM}	-60	A
Drain-Source Diode Forward Current ^a	I_S	-3.0	A
Maximum Power Dissipation ^a	P_D	3.1	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 To 150	$^\circ C$

Thermal Characteristic

Parameter	Symbol	Limit	Unit
Thermal Resistance, Junction-to-Ambient ^a	$R_{\theta JA}$	60	$^\circ C/W$

Notes:

- a. Surface Mounted on 1in² Pad area , $T < 10$ sec ;
- b. Guaranteed by Design, not subject to production testing.

Electrical Characteristics ($T_A=25^\circ C$ unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
-----------	--------	-----------	-----	-----	-----	------



Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=-250\mu A$	-30	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-30V, V_{GS}=0V$	-	-	-1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 25V, V_{DS}=0V$	-	-	± 100	nA
On Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1	-1.8	-3	V
Drain-Source On-State Resistance	$R_{DS(ON)}^a$	$V_{GS}=-20V, I_D=-12A$	-	9	11	m Ω
		$V_{GS}=-10V, I_D=-12A$	-	10	13	
		$V_{GS}=-6V, I_D=-10A$	-	12.7	17	
Forward Transconductance	g_{FS}	$V_{DS}=-5V, I_D=-10A$	-	21	-	S
Dynamic Characteristics ^b						
Input Capacitance	C_{ISS}	$V_{DS}=-15V,$ $V_{GS}=0V, F=1.0MHz$	-	2060	-	pF
Output Capacitance	C_{OSS}		-	370	-	
Reverse Transfer Capacitance	C_{RSS}		-	295	-	
Switching Characteristics ^b						
Turn-on Delay Time	$t_{d(on)}$	$V_{DS}=-15V,$ $I_D=-1A$ $V_{GS}=-10V, R_{GEN}=3\Omega,$ $R_L=1.25\Omega$	-	11	-	nS
Turn-on Rise Time	t_r		-	9.4	-	nS
Turn-Off Delay Time	$t_{d(off)}$		-	24	-	nS
Turn-Off Fall Time	t_f		-	12	-	nS
Total Gate Charge	Q_g	$V_{DS}=-15V,$ $I_D=-12A,$ $V_{GS}=-10V$	-	30	-	nC
Gate-Source Charge	Q_{gs}		-	4.6	-	nC
Gate-Drain Charge	Q_{gd}		-	10	-	nC
Drain-Source Diode Characteristics						
Diode Forward Voltage	V_{SD}^a	$V_{GS}=0V, I_S=-1A$	-	-0.7	-1	V

Notes:

Pulse Test: Pulse Width $\leq 300\mu s$, Duty cycle $\leq 2\%$.



TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

Resistive Switching Test Circuit & Waveforms

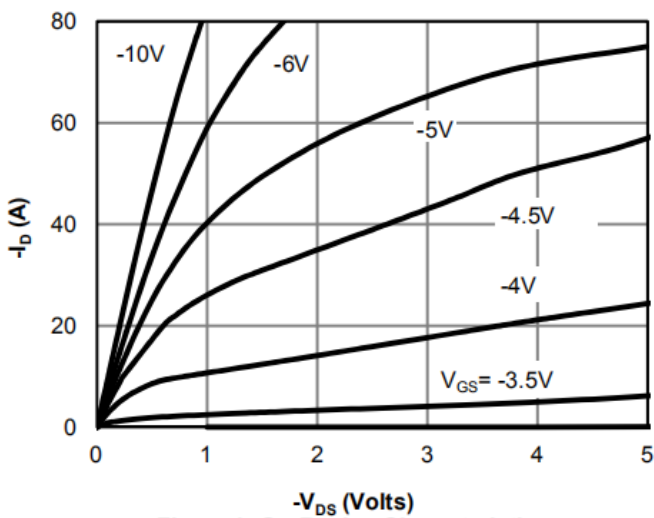
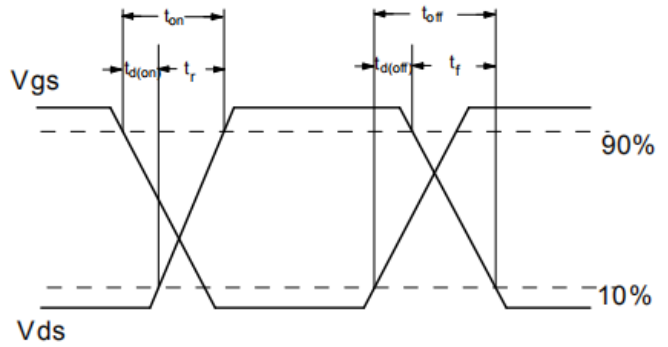
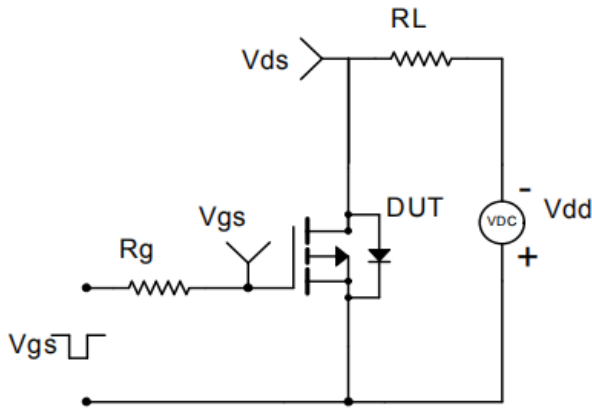


Figure 1: On-Region Characteristics

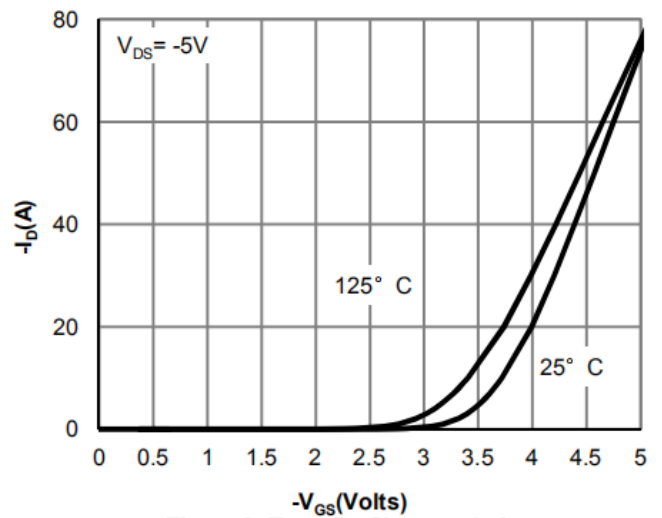


Figure 2: Transfer Characteristics

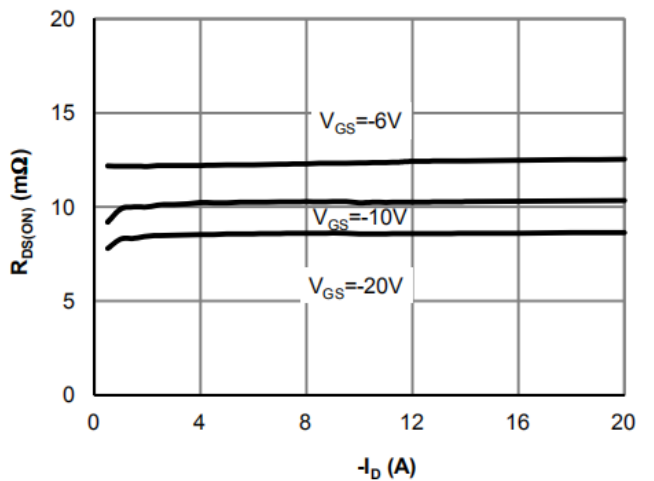


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

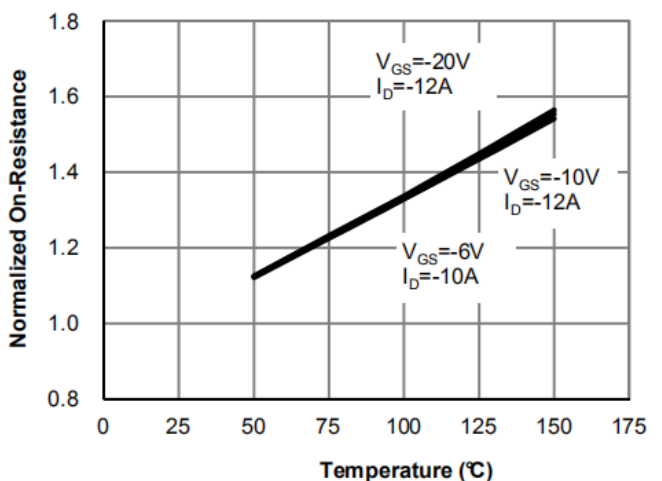


Figure 4: On-Resistance vs. Junction Temperature



DP4407B

Single P Channel Enhancement Power

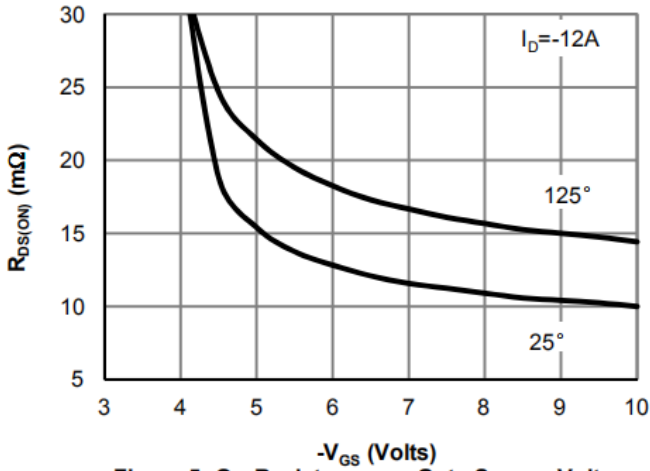


Figure 5: On-Resistance vs. Gate-Source Voltage

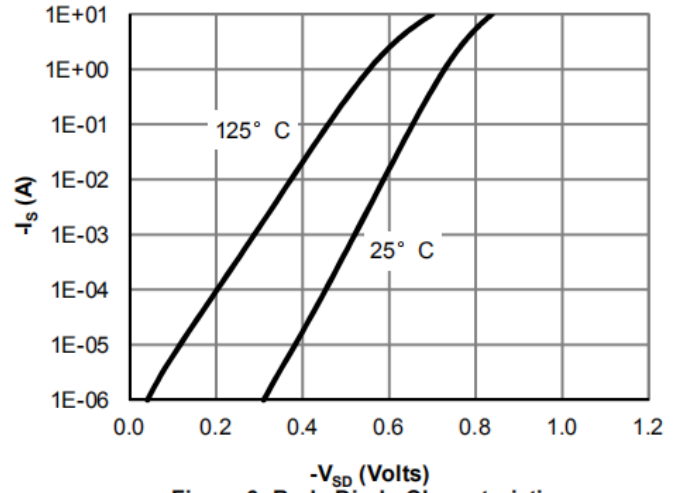


Figure 6: Body-Diode Characteristics

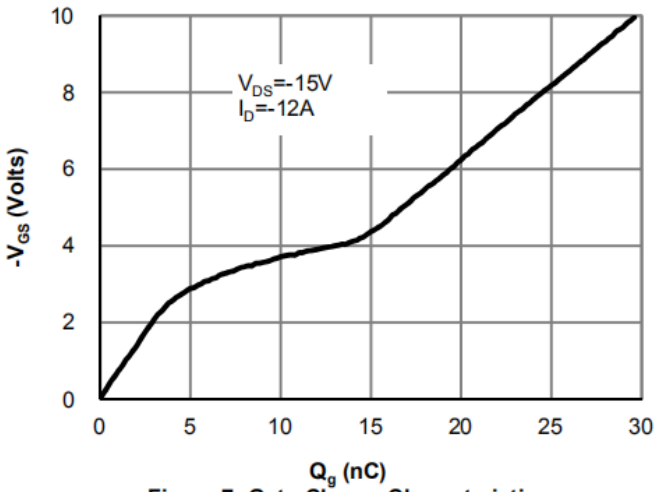


Figure 7: Gate-Charge Characteristics

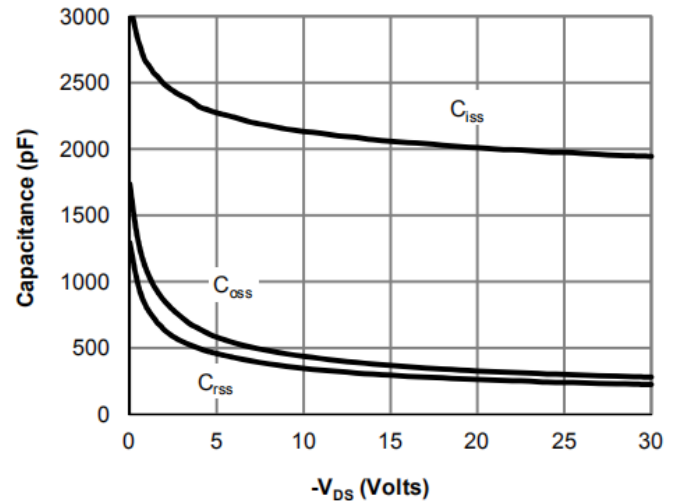


Figure 8: Capacitance Characteristics

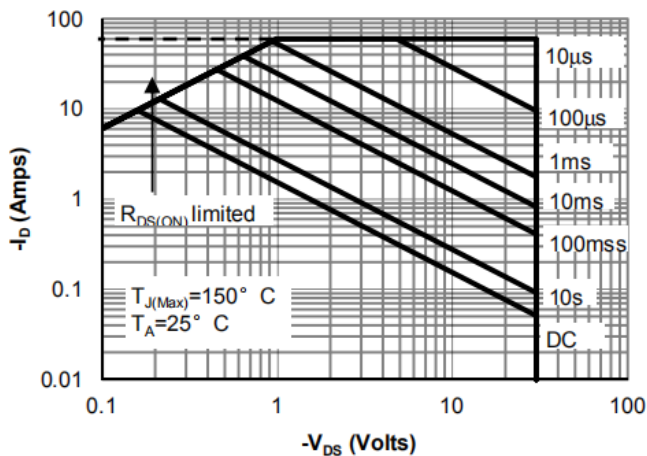


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

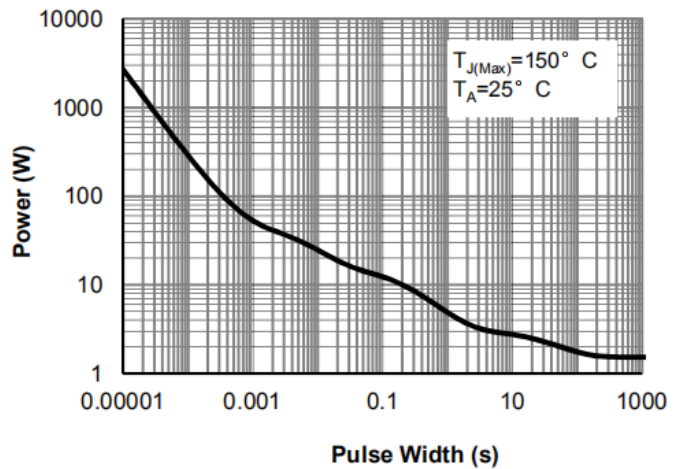


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)



DP4407B

Single P Channel Enhancement Power

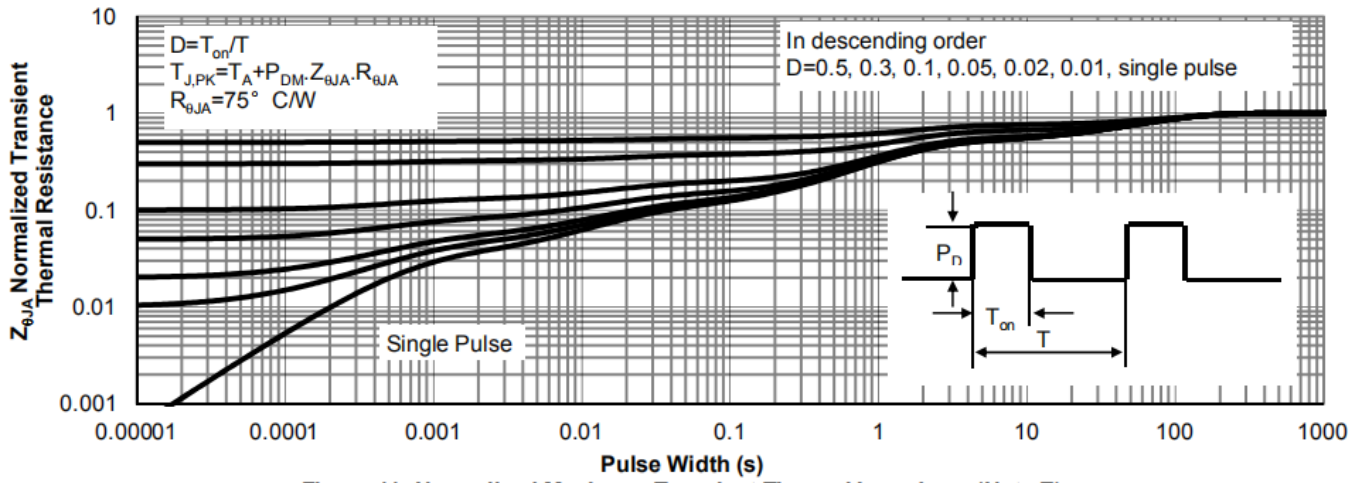
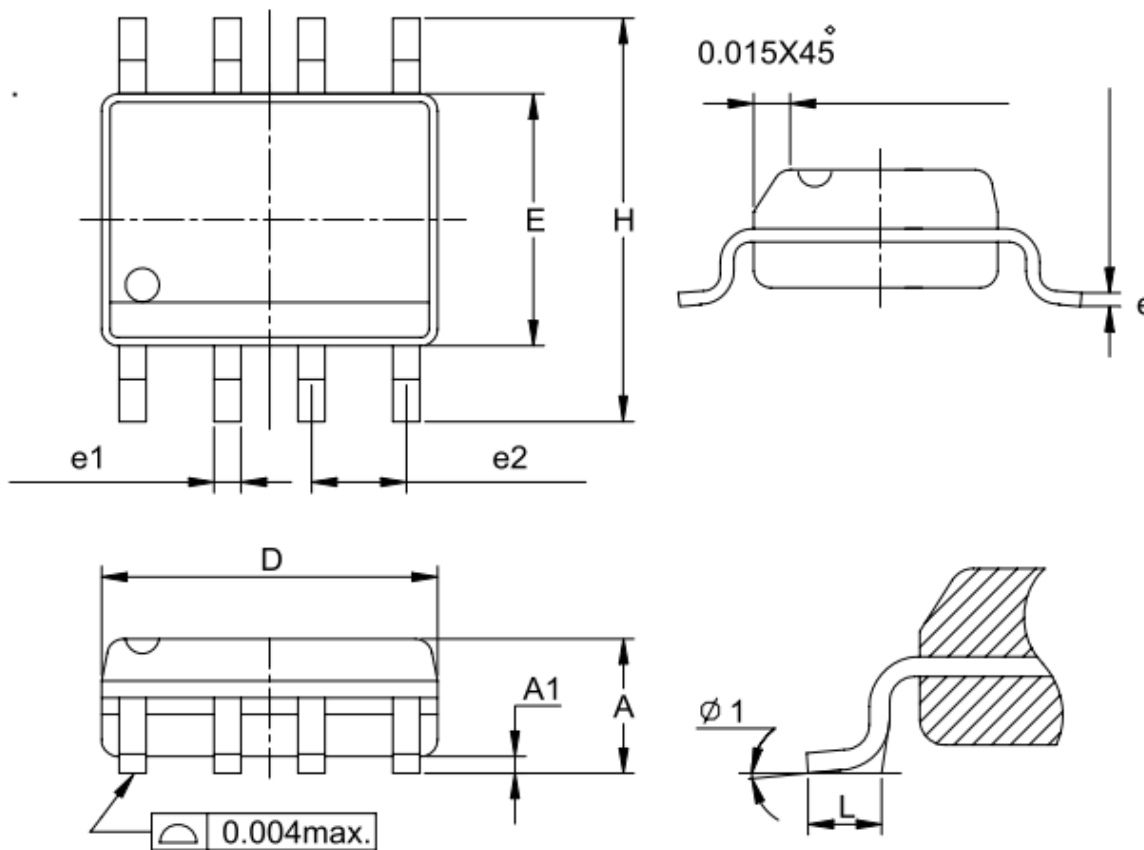


Figure 11: Normalized Maximum Transient Thermal Impedance(Note E)



Package Outline Dimensions

SOP-8



Dim	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	1.35	1.75	0.053	0.069
A1	0.10	0.25	0.004	0.010
D	4.80	5.00	0.189	0.197
E	3.80	4.00	0.150	0.157
H	5.80	6.20	0.228	0.244
L	0.40	1.27	0.016	0.050
e1	0.33	0.51	0.013	0.020
e2	1.27BSC		0.5BSC	
$\phi 1$	8°		8°	



Revision History

Date	Rev	Description	Reviser	Approver
2019/10/09	1.0	First Release	Zhou Hui	Xu Yan

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [MOSFET](#) category:

Click to view products by [Developer Microelectronics](#) manufacturer:

Other Similar products are found below :

[MCH3443-TL-E](#) [MCH6422-TL-E](#) [FDPF9N50NZ](#) [NTNS3A92PZT5G](#) [IRFD120](#) [JANTX2N5237](#) [2N7000](#) [2SK2464-TL-E](#) [AOD464](#) [2SJ277-DL-E](#) [2SK2267\(Q\)](#) [2SK2545\(Q,T\)](#) [405094E](#) [423220D](#) [MIC4420CM-TR](#) [VN1206L](#) [614234A](#) [715780A](#) [SSM6J414TU,LF\(T](#) [751625C](#) [IRS2092STRPBF-EL](#) [IPS70R2K0CEAKMA1](#) [BSF024N03LT3 G](#) [PSMN4R2-30MLD](#) [TK31J60W5,S1VQ\(O](#) [2SK2614\(TE16L1,Q\)](#) [DMN1017UCP3-7](#) [EFC2J004NUZTDG](#) [P85W28HP2F-7071](#) [DMN1053UCP4-7](#) [NTE2384](#) [NTE2969](#) [NTE6400A](#) [DMC2700UDMQ-7](#) [DMN2080UCB4-7](#) [DMN61D9UWQ-13](#) [US6M2GTR](#) [DMN31D5UDJ-7](#) [SSM6P54TU,LF](#) [DMP22D4UFO-7B](#) [IPS60R3K4CEAKMA1](#) [DMN1006UCA6-7](#) [DMN16M9UCA6-7](#) [STF5N65M6](#) [IRF40H233XTMA1](#) [IPSA70R950CEAKMA1](#) [IPSA70R2K0CEAKMA1](#) [STU5N65M6](#) [C3M0021120D](#) [DMN6022SSD-13](#)