

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
18V	4.4mΩ@ 4.5V	15A
	4.5mΩ@ 4.0V	
	4.6mΩ@ 3.8V	
	4.9mΩ@ 3.1V	
	5.4mΩ@ 2.5V	

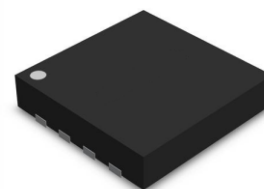
Feature

- Trench Power MOSFET
- Excellent $R_{DS(on)}$
- Low Gate Charge
- ESD Protected

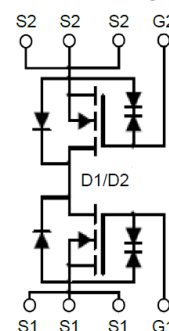
Application

- Load Switch
- Battery Switch

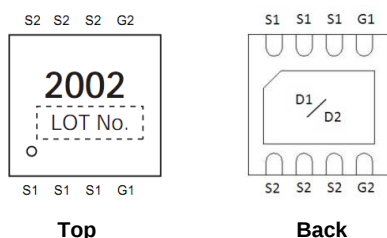
DFN3×3-8L



Schematic diagram



MARKING:



ABSOLUTE MAXIMUM RATINGS ($T_a=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	18	V
Gate-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current ⁽¹⁾	I_D	15	A
Pulsed Drain Current ^(1,2)	I_{DM}	50	A
Power Dissipation	P_D	3	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	42	$^{\circ}\text{C/W}$
Total Power Dissipation ⁽³⁾	P_D	3	W
Junction Temperature	T_J	150	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55~ +150	

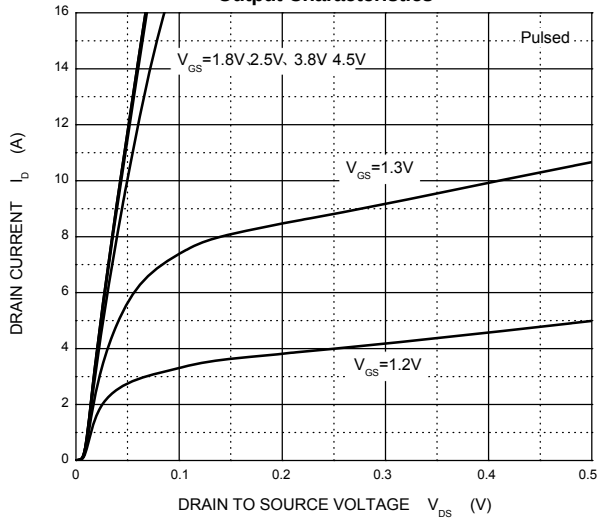
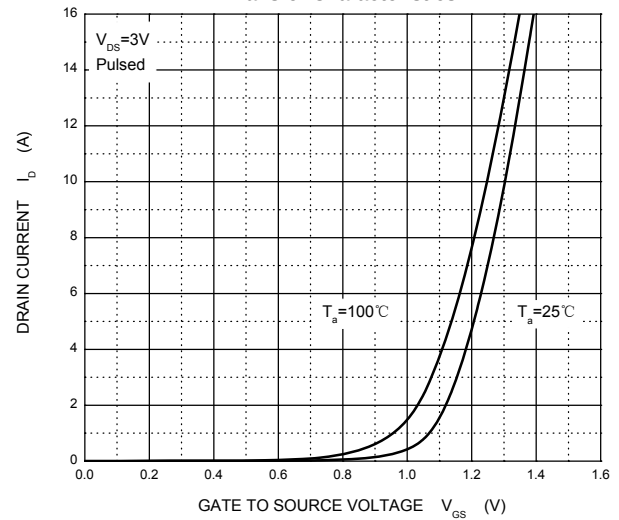
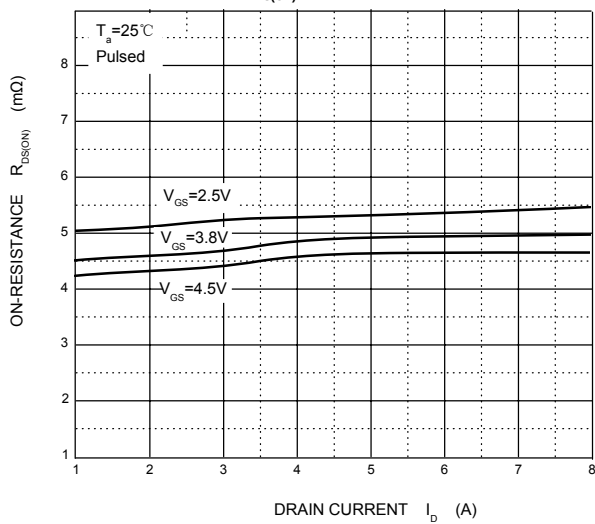
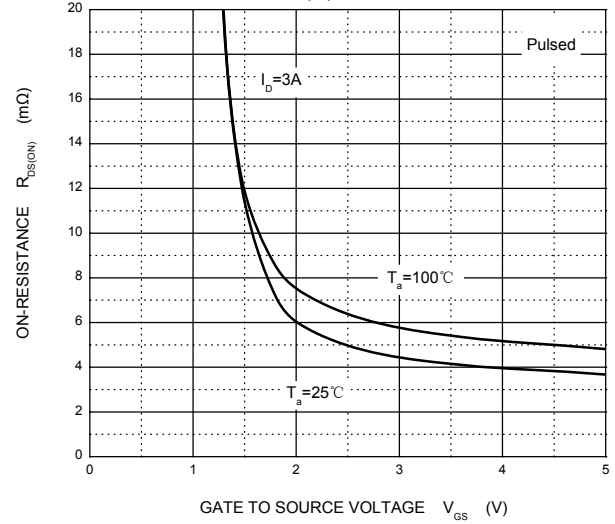
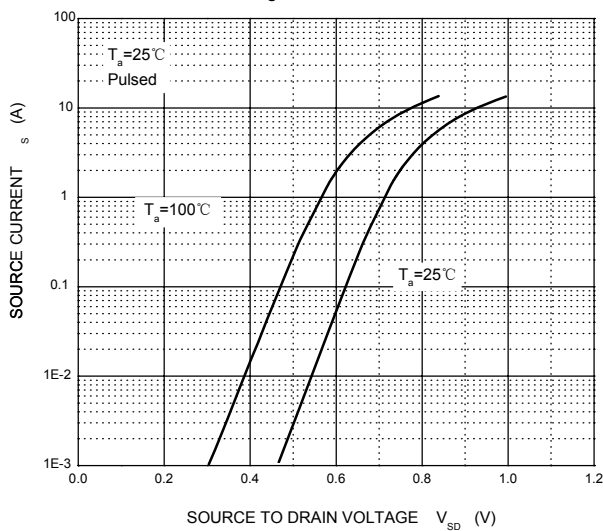
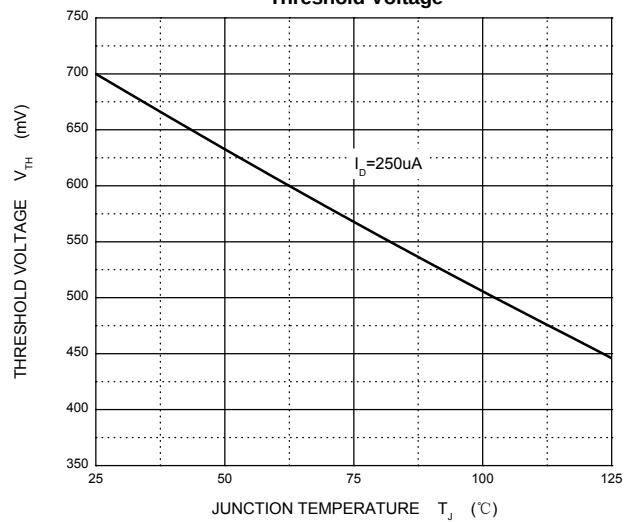
MOSFET ELECTRICAL CHARACTERISTICS(T_a=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
STATIC PARAMETERS						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D =250μA	18			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =16V,V _{GS} = 0V			1	μA
Gate-body leakage current	I _{GSS}	V _{GS} =±4.5V, V _{DS} = 0V			±1	μA
		V _{GS} =±8V, V _{DS} = 0V			±10	μA
Gate threshold voltage ⁽⁴⁾	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.4	0.75	1.0	V
Drain-source on-resistance ⁽⁴⁾	R _{DS(on)}	V _{GS} =4.5V, I _D =3A	4.0	4.4	5.5	mΩ
		V _{GS} =4.0V, I _D =3A	4.1	4.5	5.8	
		V _{GS} =3.8V, I _D =3A	4.2	4.6	6.0	
		V _{GS} =3.1V, I _D =3A	4.4	4.9	6.3	
		V _{GS} =2.5V, I _D =3A	4.8	5.4	6.5	
Forward tranconductance ⁽⁴⁾	g _{FS}	V _{DS} =5V, I _D =7A	8			S
Diode forward voltag ⁽⁴⁾	V _{SD}	I _S =1A, V _{GS} = 0V			1	V
DYNAMIC PARAMETERS						
Input Capacitance	C _{iss}	V _{DS} =10V,V _{GS} =0V,f =1MHz		1970		pF
Output Capacitance	C _{oss}			315		
Reverse Transfer Capacitance	C _{rss}			285		
Total gate charge	Q _g	V _{DS} =10V,V _{GS} =4.5V,I _D =3A		26.5		nC
Gate-source charge	Q _{gs}			2.4		
Gate-drain charge	Q _{gd}			7.6		
SWITCHING PARAMETERS						
Turn-on delay time	t _{d(on)}	V _{GS} =5V,V _{DD} =10V,I _D =3A R _L =1.35Ω,R _{GEN} =3Ω		4.5		ns
Turn-on rise time	t _r			8.9		
Turn-off delay time	t _{d(off)}			85		
Turn-off fall time	t _f			24		
Drain-Source Diode Characteristics ⁽⁵⁾						
Diode Forward Current	I _S				15	A

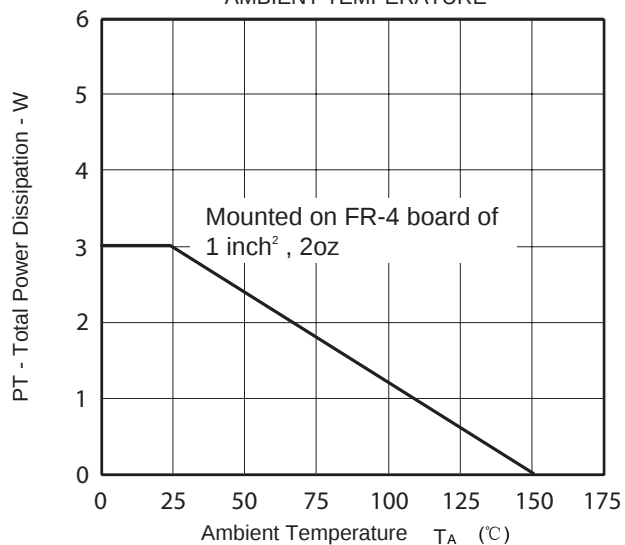
Notes :

- 1.The data tested by surface mounted on a 1 inch² FR-4 board with 20Z copper.
- 2.Pulse Test:Pulse Width < 10us, Duty Cycle < 0.5%.
- 3.The power dissipation is limited by 150°C junction temperature
- 4.Pulse Test : Pulse width≤300μs, duty cycle≤0.5%.
- 5.The data is theoretically the same as I_D , in real applications , should be limited by total power dissipation.

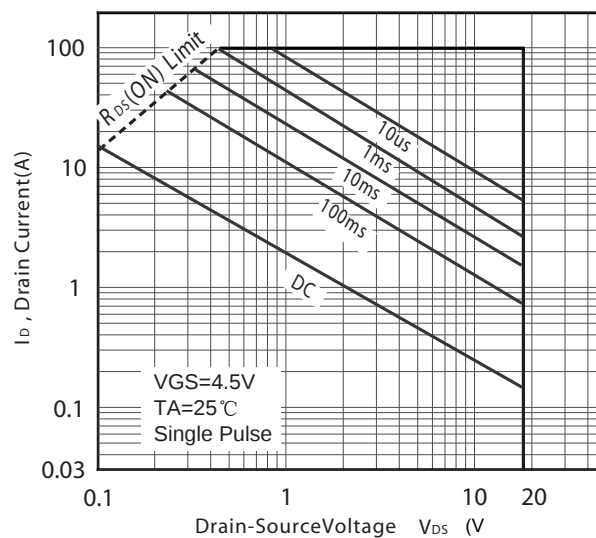
Typical Electrical and Thermal Characteristics

Output Characteristics

Transfer Characteristics

 $R_{DS(ON)}$ — I_D

 $R_{DS(ON)}$ — V_{GS}

 I_S — V_{SD}

Threshold Voltage


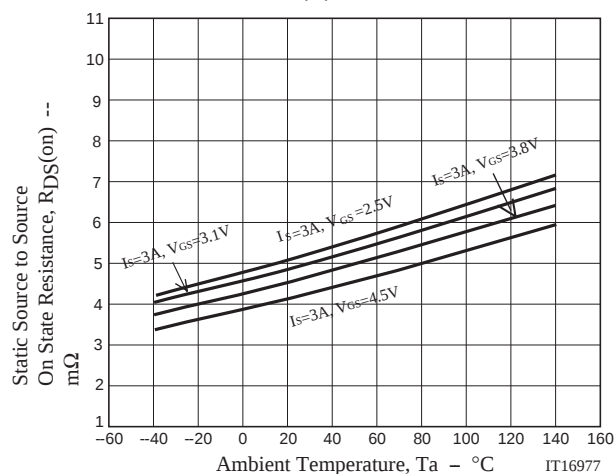
TOTAL POWER DISSIPATION vs.
AMBIENT TEMPERATURE

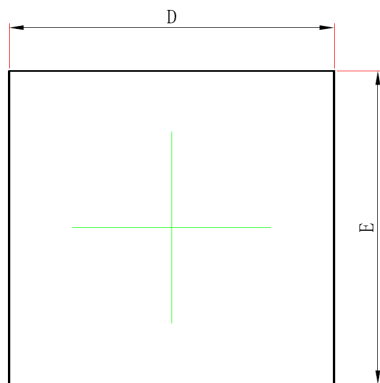


Maximum Safe Operating Area

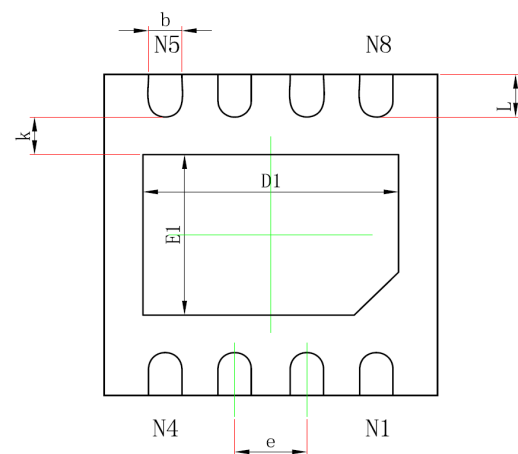


$R_{DS(ON)}$ — T_A

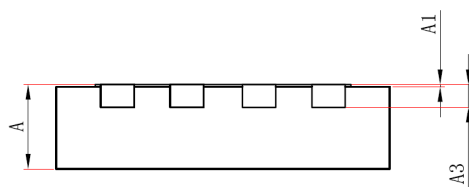


DFN3×3-8L Package Information


TOP VIEW



BOTTOM VIEW



SIDE VIEW

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.800	0.028	0.031
A1	0.000	0.050	0.000	0.002
A3	0.203REF.		0.008REF.	
D	2.924	3.076	0.115	0.121
E	2.924	3.076	0.115	0.121
D1	2.200	2.400	0.087	0.094
E1	1.400	1.600	0.055	0.063
b	0.250	0.350	0.010	0.014
k	0.200MIN		0.008MIN	
e	0.650TYP.		0.026TYP.	
L	0.324	0.476	0.013	0.019