

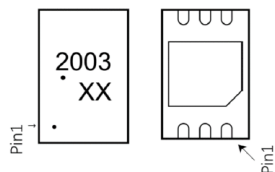
Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
20V	6.2m Ω @4.5V	12A
	6.4m Ω @4.0V	
	6.8m Ω @3.8V	
	7.2m Ω @3.1V	
	8.2m Ω @2.5V	

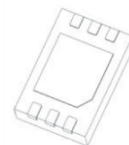
DESCRIPTION

The GPCD2003A uses advanced trench technology to provide excellent $R_{DS(on)}$ and low gate charge. It is ESD protected. This device is suitable for use as a uni-directional or bi-directional load switch, facilitated by its common-drain configuration.

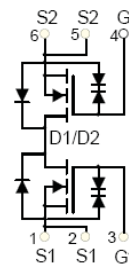
MARKING:



DFN2X3-6L



Schematic diagram



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current	I_D	12	A
Pulsed Drain Current	I_{DM}	50	A
Power Dissipation	P_D	1.5	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	83.3	$^{\circ}\text{C/W}$
Junction Temperature	T_J	150	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55~ +150	
Lead Temperature for Soldering Purposes(1/8" from case for 10 s)	T_L	260	

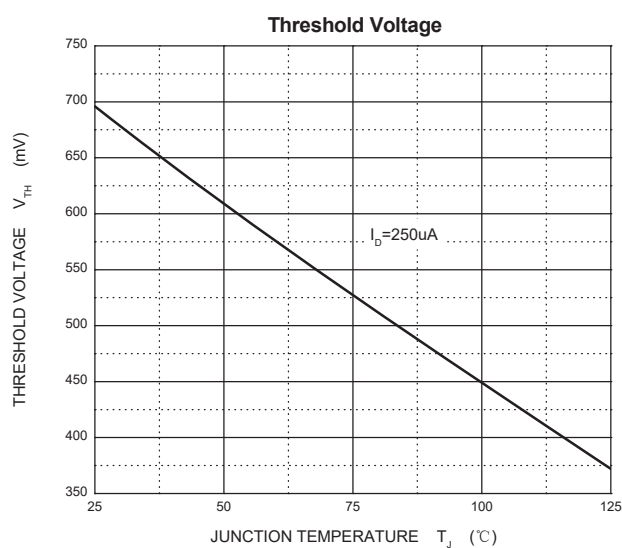
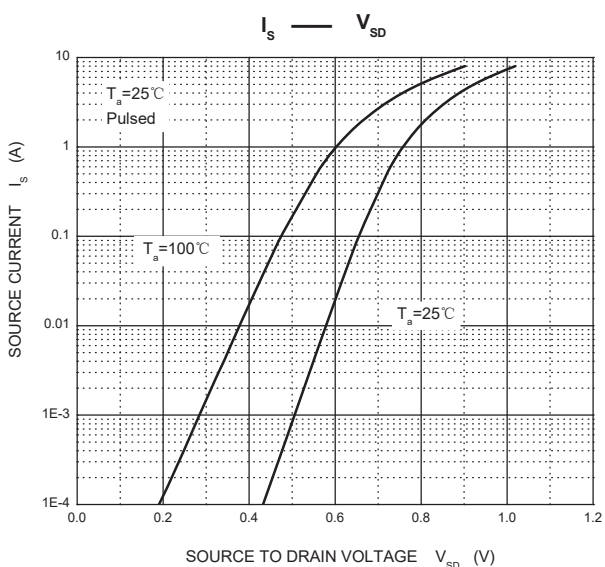
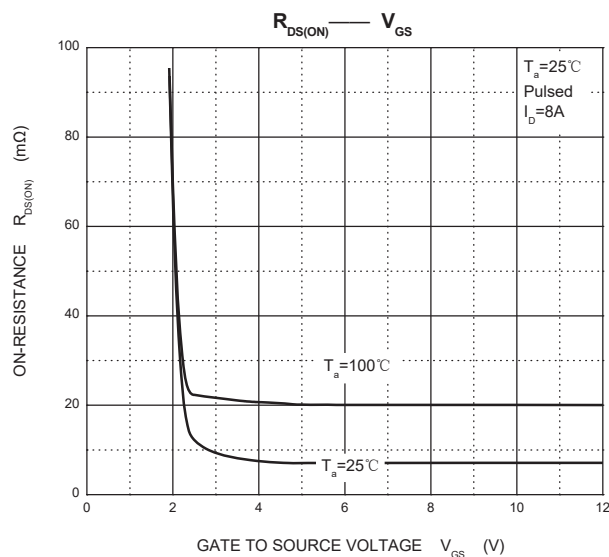
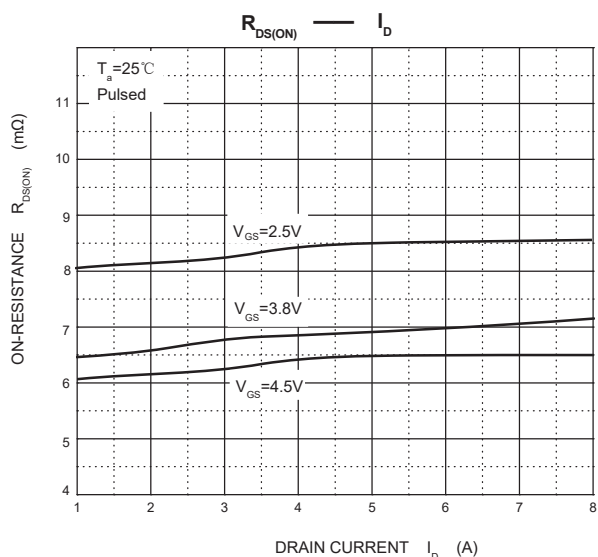
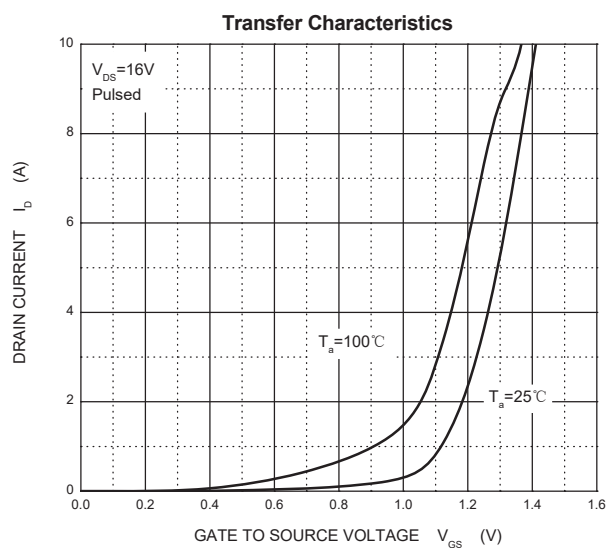
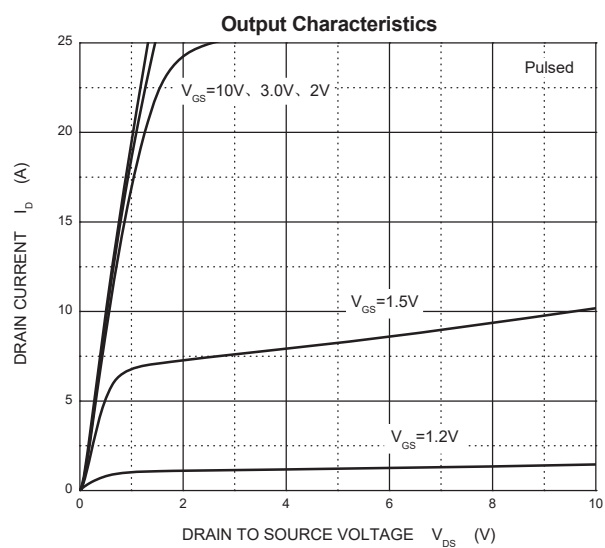
MOSFET ELECTRICAL CHARACTERISTICS($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
STATIC PARAMETERS						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D =250μA	20			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 ¹	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.4	0.7	1.0	V
Drain-Source on-Resistance ¹	R _{DS(on)}	V _{GS} =4.5V, I _D =3A	4.5	6.2	7.2	mΩ
		V _{GS} =4.0V, I _D =3A	4.8	6.4	7.5	
		V _{GS} =3.8V, I _D =3A	5.0	6.8	8.2	
		V _{GS} =3.1V, I _D =3A	5.5	7.2	9.2	
		V _{GS} =2.5V, I _D =3A	6.2	8.2	10.5	
Forward Tranconductance ¹	g _{FS}	V _{DS} =5V, I _D =7A	9	36		S
Diode Forward Voltage ¹	V _{SD}	I _S =1A, V _{GS} = 0V			1	V
DYNAMIC PARAMETERS ²						
Input Capacitance	C _{iss}	V _{DS} =9V,V _{GS} =0V,f =0.1MHz		800		pF
Output Capacitance	C _{oss}			183		
Reverse Transfer Capacitance	C _{rss}			30		
Total Gate Charge	Q _g	V _{DS} =10V,V _{GS} =4.5V,I _D =3A		19		nC
Gate-Source Charge	Q _{gs}			1.1		
Gate-Drain Charge	Q _{gd}			6.1		
SWITCHING PARAMETERS ²						
Turn-On Delay Time	t _{d(on)}	V _{GS} =5V,V _{DD} =10V,R _L =1.35Ω, R _{GEN} =3Ω		2.2		ns
Turn-On Rise Time	t _r			5.9		
Turn-Off Delay Time	t _{d(off)}			40		
Turn-Off Fall Time	t _f			90		
Drain-Source Diode Characteristics						
Diode Forward Current	I _S				6.0	A

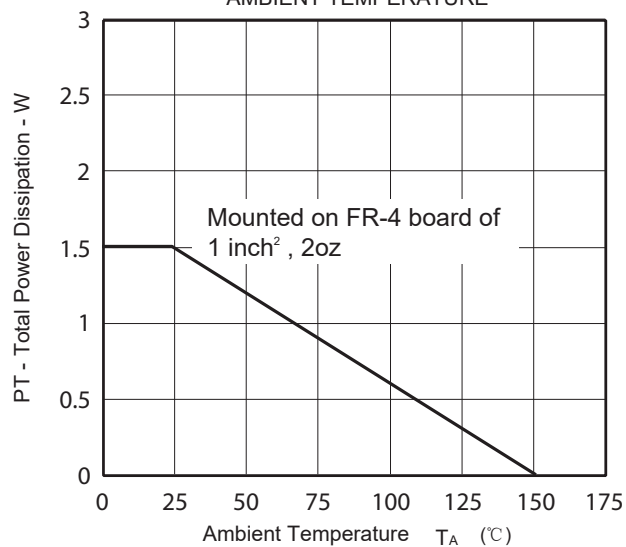
Notes :

1. Pulse Test : Pulse width $\leq 300\mu s$, duty cycle $\leq 0.5\%$.
2. Guaranteed by design, not subject to production testing.

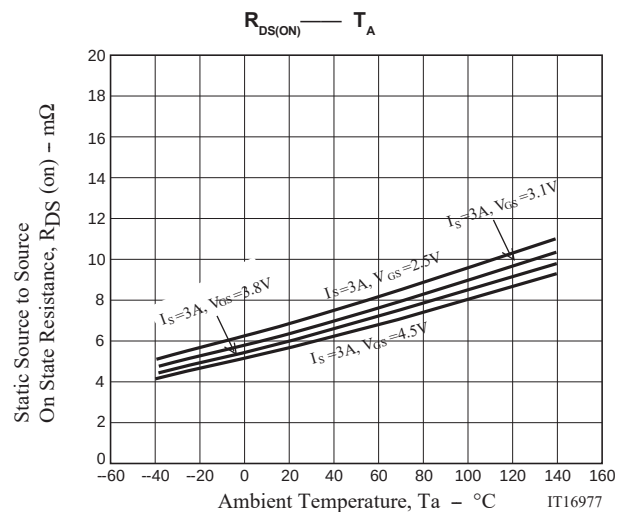
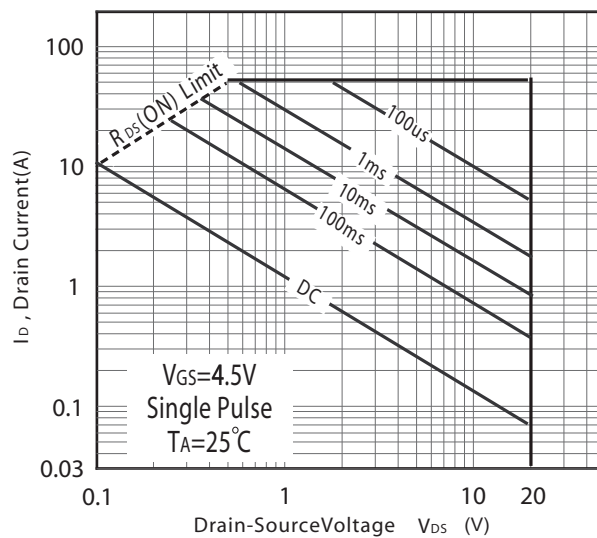
Typical Electrical and Thermal Characteristics

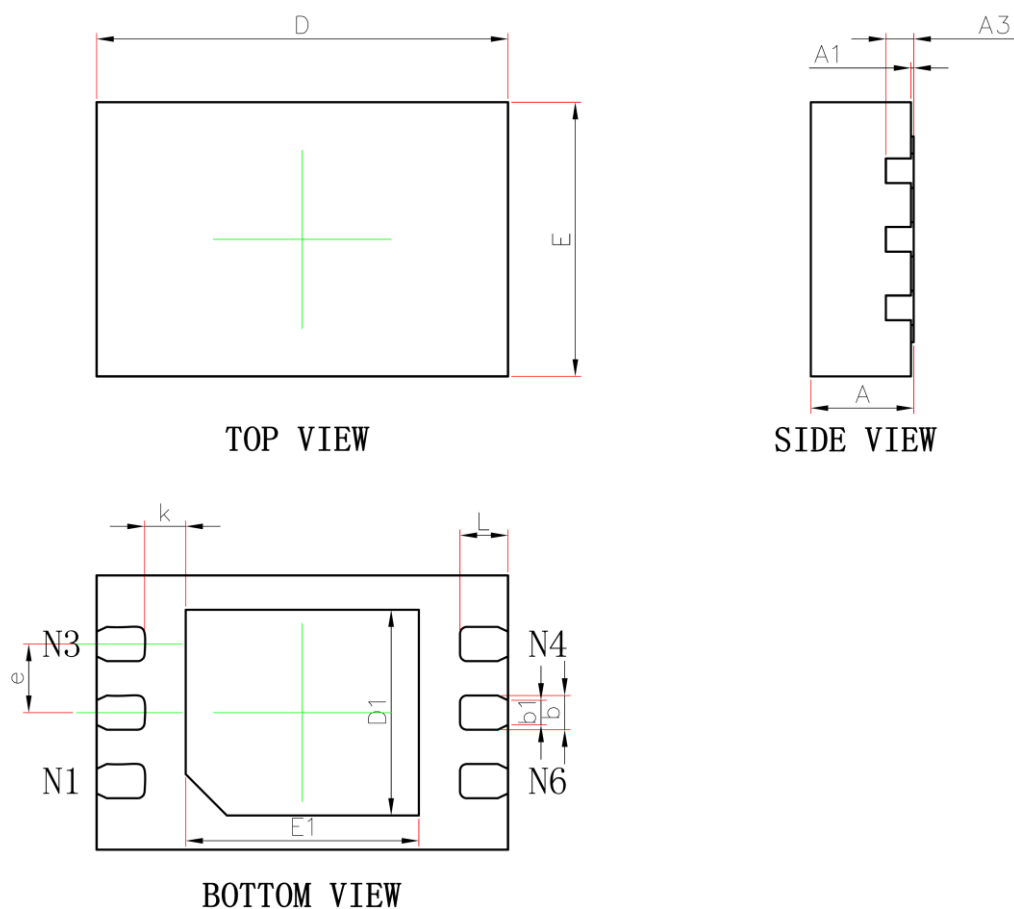


TOTAL POWER DISSIPATION vs.
AMBIENT TEMPERATURE



Maximum Safe Operating Area



DFN2X3-6L Package Information


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	2.900	3.100	0.114	0.122
E	1.900	2.100	0.075	0.083
D1	1.400	1.600	0.055	0.063
E1	1.600	1.800	0.063	0.071
b	0.200	0.300	0.008	0.012
k	0.150	0.350	0.006	0.014
b1	0.180REF		0.007REF	
e	0.500BSC		0.020BSC	
L	0.300	0.450	0.012	0.018

Attention:

- GreenPower Electronics reserves the right to improve product design function and reliability without notice.
- Any and all semiconductor products have certain probability to fail or malfunction, which may result in personal injury, death or property damage. Customer are solely responsible for providing adequate safe measures when design their systems.
- GreenPower Electronics products belong to consumer electronics or other civilian electronic products.