



#### Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	$I_D$
-12V	18m $\Omega$ @-4.5V	-8A
	22m $\Omega$ @-3.7V	
	24m $\Omega$ @-2.5V	
	36m $\Omega$ @-1.8V	
	53m $\Omega$ @-1.5V	

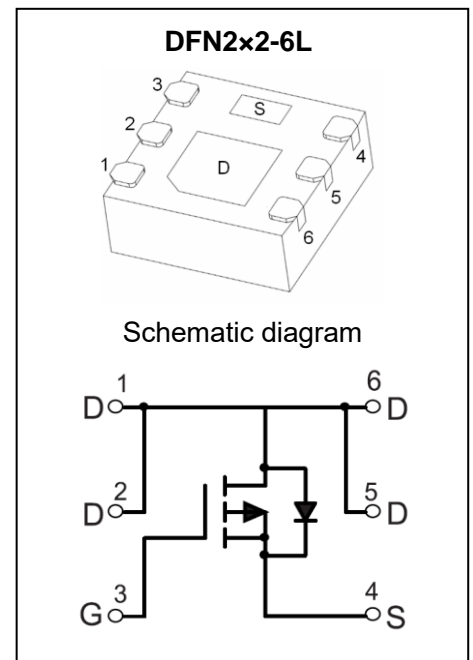
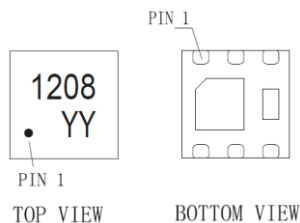
#### FEATURE

- Advanced trench MOSFET process technology
- Ultra low on-resistance with low gate charge

#### APPLICATION

- PWM application
- Load switch
- Battery charge in cellular handset

#### MARKING:



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	-12	V
Gate-Source Voltage	$V_{GS}$	$\pm 10$	V
Continuous Drain Current	$I_D$	-8	A
Plused Drain Current*	$I_{DM}$	-28	A
Power Dissipation	$P_D$	0.75	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	357	$^{\circ}\text{C/W}$
Junction Temperature	$T_J$	150	$^{\circ}\text{C}$
Storage Temperature	$T_{STG}$	-55~+150	$^{\circ}\text{C}$

\*R repetitive rating: Pulse width limited by junction temperature.

**MOSFET ELECTRICAL CHARACTERISTICS(T<sub>a</sub>=25°C unless otherwise noted)**

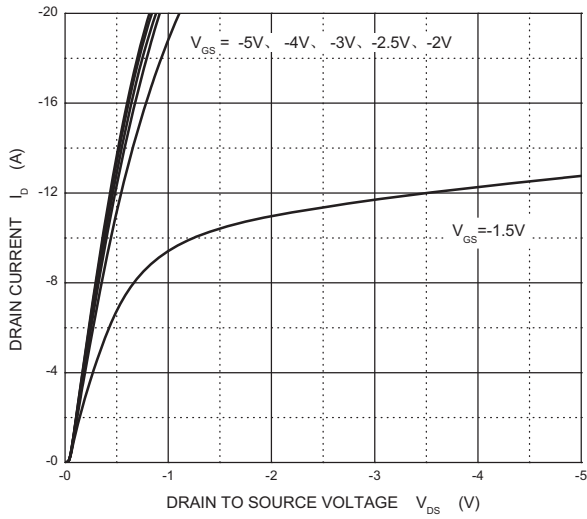
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
<b>Static Characteristics</b>						
Drain-source breakdown voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = -250μA	-12			V
Zero gate voltage drain current	I <sub>DSS</sub>	V <sub>DS</sub> = -12V, V <sub>GS</sub> = 0V			-1	μA
Gate-body leakage current	I <sub>GSS</sub>	V <sub>GS</sub> = ±10V, V <sub>DS</sub> = 0V			±100	nA
Gate threshold voltage <sup>1</sup>	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250μA	-0.4	-0.6	-1.0	V
Drain-source on-resistance <sup>1</sup>	R <sub>DS(on)</sub>	V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -5A		18	28	mΩ
		V <sub>GS</sub> = -3.7V, I <sub>D</sub> = -4.6A		22	29	
		V <sub>GS</sub> = -2.5V, I <sub>D</sub> = -4.3A		24	40	
		V <sub>GS</sub> = -1.8V, I <sub>D</sub> = -1A		36	54	
		V <sub>GS</sub> = -1.5V, I <sub>D</sub> = -0.5A		53	80	
Forward tranconductance <sup>1</sup>	g <sub>FS</sub>	V <sub>DS</sub> = -5V, I <sub>D</sub> = -5A	10	15		S
<b>Dynamic characteristics<sup>2</sup></b>						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> = -6V, V <sub>GS</sub> = 0V, f = 1MHz		1200		pF
Output Capacitance	C <sub>oss</sub>			250		
Reverse Transfer Capacitance	C <sub>rss</sub>			260		
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> = -6V, V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -5A		14		nC
Gate-Source Charge	Q <sub>gs</sub>			2.3		
Gate-Drain Charge	Q <sub>gd</sub>			3.6		
Turn-on delay time	t <sub>d(on)</sub>	V <sub>DD</sub> = -6V, V <sub>GEN</sub> = -4.5V, I <sub>D</sub> = -4A R <sub>L</sub> = 6Ω, R <sub>GEN</sub> = 1Ω		26		ns
Turn-on rise time	t <sub>r</sub>			24		
Turn-off delay time	t <sub>d(off)</sub>			45		
Turn-off fall time	t <sub>f</sub>			20		
<b>Drain-Source Diode Characteristics</b>						
Diode Forward Voltage <sup>1</sup>	V <sub>SD</sub>	V <sub>GS</sub> = 0V, I <sub>SD</sub> = -4A		-0.8	-1.2	V

**Notes:**

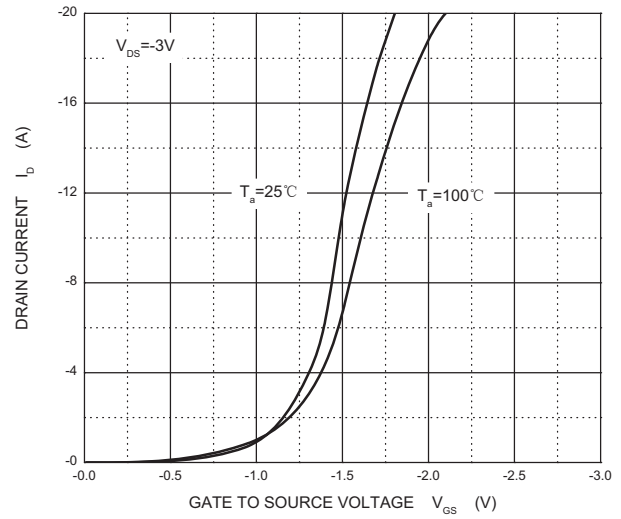
1. Pulse test; pulse width ≤ 300μs, duty cycle ≤ 2%.
2. Guaranteed by design, not subject to production testing.

**Typical Electrical and Thermal Characteristics**

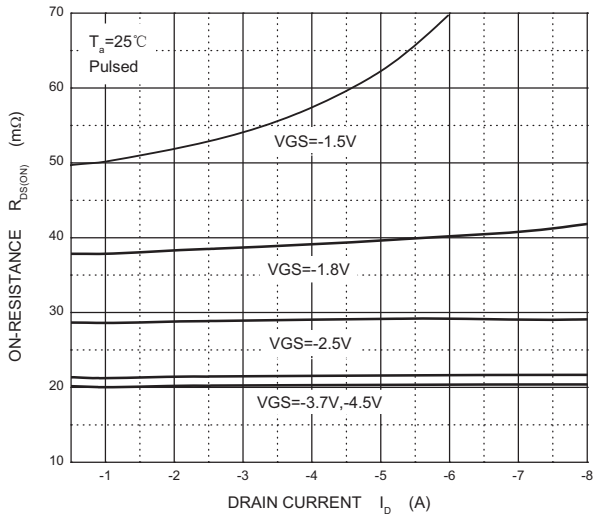
**Output Characteristics**



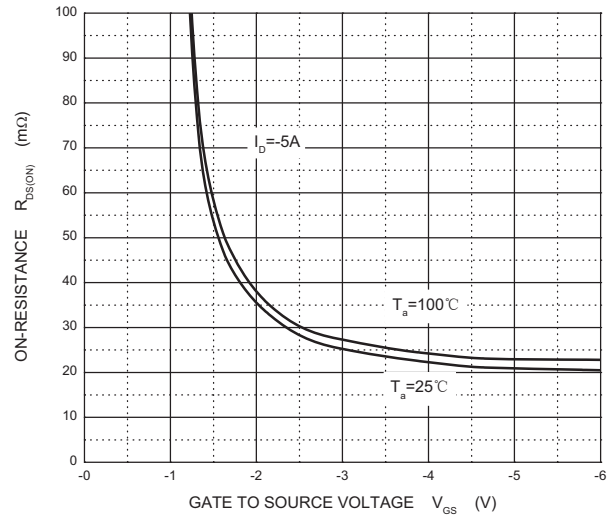
**Transfer Characteristics**



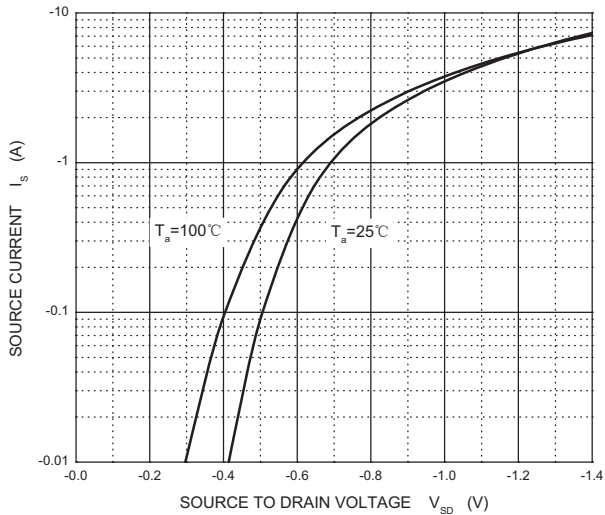
**$R_{DS(ON)}$  —  $I_D$**



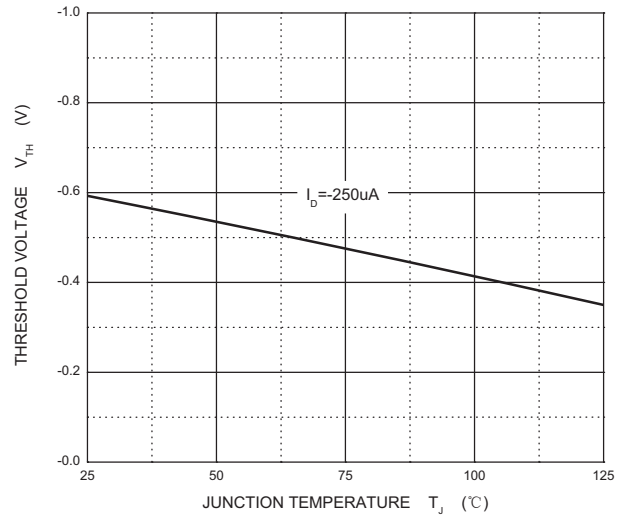
**$R_{DS(ON)}$  —  $V_{GS}$**



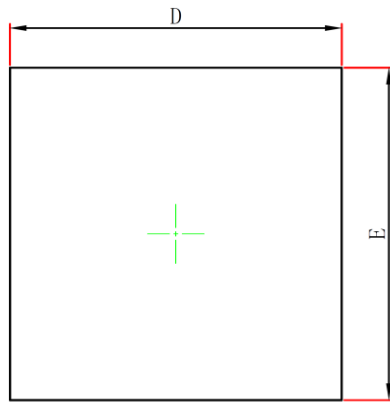
**$I_S$  —  $V_{SD}$**



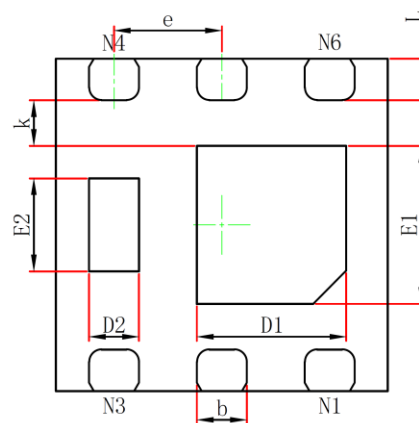
**Threshold Voltage**



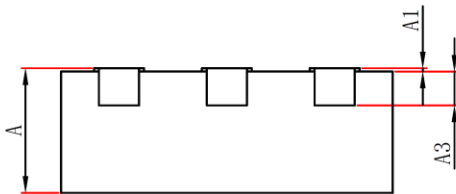
## DFN2x2-6L Package Information



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	0.050	0	0.002
A3	2.03REF		0.008REF	
D	1.900	2.100	0.075	0.083
E	1.900	2.100	0.075	0.083
D1	0.800	1.000	0.031	0.039
E1	0.850	1.050	0.033	0.041
D2	0.200	0.400	0.008	0.016
E2	0.460	0.660	0.018	0.026
k	0.200MIN		0.008MIN	
b	0.250	0.350	0.010	0.014
e	0.65BSC		0.026TYP	
L	0.174	0.326	0.007	0.013