



### Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	$I_D$
40V	15mΩ@10V	15A
	20mΩ@4.5V	

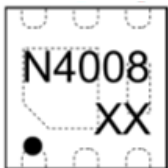
### Feature

- High density cell design for ultra low  $R_{DS(ON)}$
- Excellent package for good heat dissipation

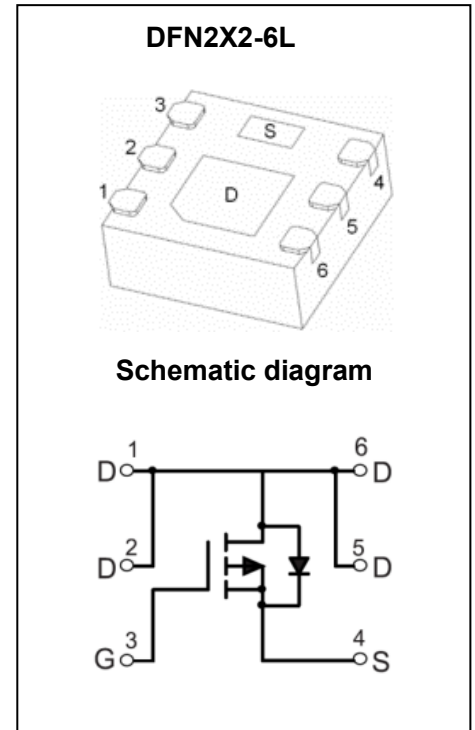
### Application

- Power switching application
- Hard switched and high frequency circuits
- Uninterruptible power supply

### MARKING:



N4008 = Device Code  
XX = Date Code



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

Parameter	Symbol	Value	Unit	
Drain-Source Voltage	$V_{DS}$	40	V	
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V	
Continuous Drain Current	$I_D$	$T_c = 25^\circ\text{C}$	15	A
		$T_c = 100^\circ\text{C}$	12	A
Pulsed Drain Current	$I_{DM}$	60	A	
Single Pulsed Avalanche Energy	$E_{AS}^*$	55	mJ	
Power Dissipation	$P_D$	1.8	W	
Thermal Resistance from Junction to Ambient <sup>1</sup>	$R_{\theta JA}$	41	$^\circ\text{C}/\text{W}$	
Junction Temperature	$T_J$	150	$^\circ\text{C}$	
Storage Temperature	$T_{STG}$	-55~ +150	$^\circ\text{C}$	

\* $E_{AS}$  Test Condition  $V_{DD} = 20\text{V}$ ,  $V_{GS} = 10\text{V}$ ,  $L = 1.0\text{mH}$ ,  $I_{AS} = 11\text{A}$  Starting  $T_J = 25^\circ\text{C}$ .

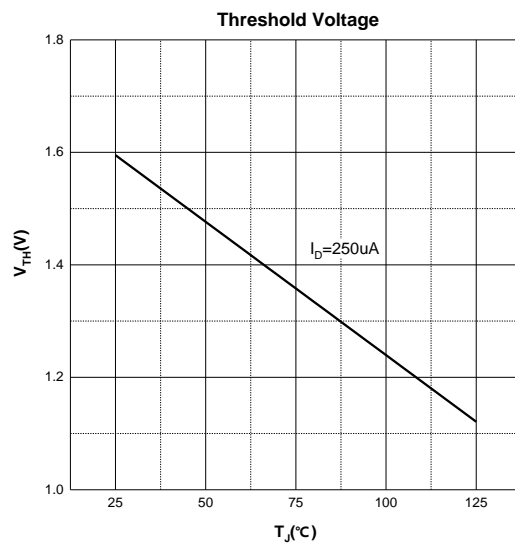
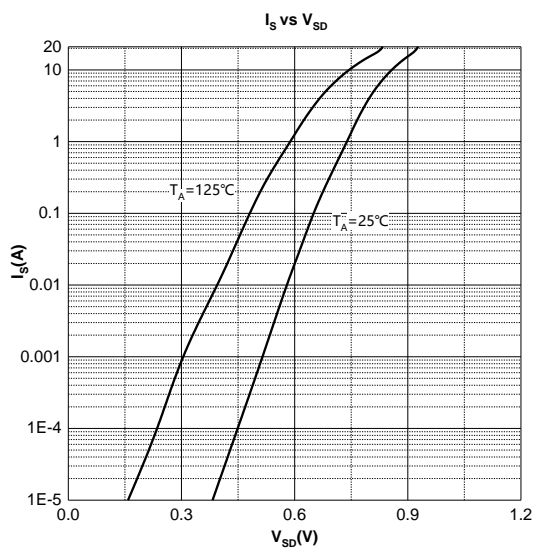
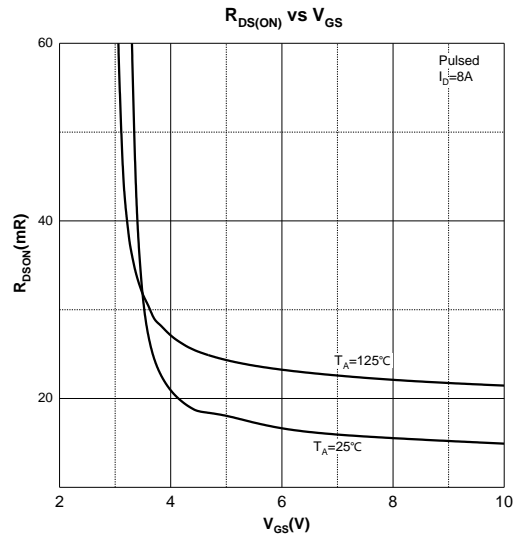
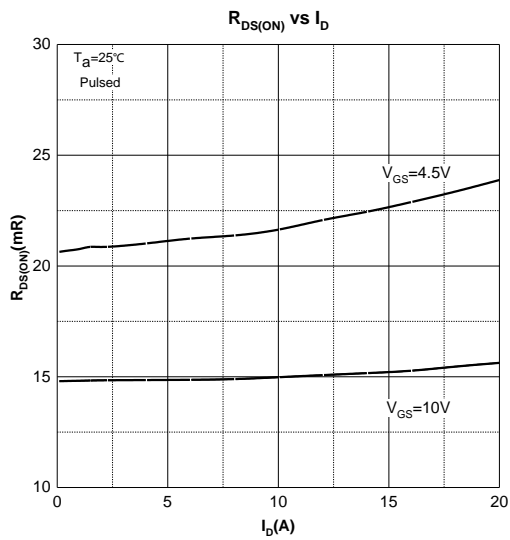
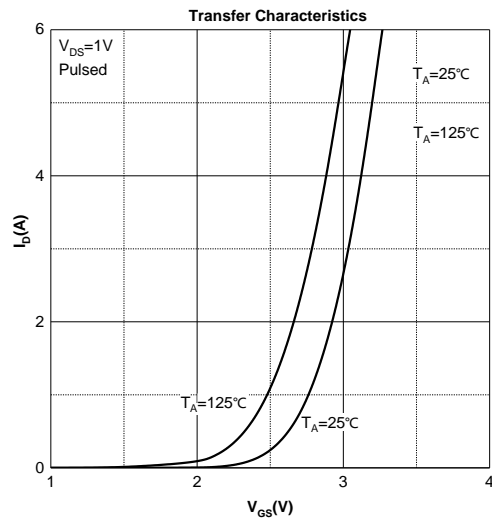
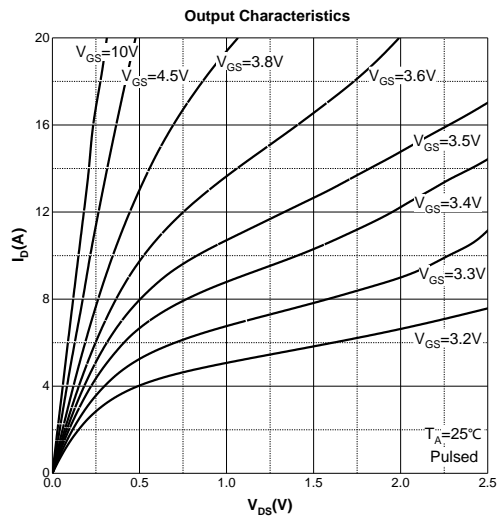
## MOSFET ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
<b>Off Characteristics</b>						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	40			V
Zero gate voltage drain current	$I_{DSS}$	$V_{DS} = 40V, V_{GS} = 0V$			1	$\mu A$
Gate-body leakage current	$I_{GSS}$	$V_{GS} = \pm 20V, V_{DS} = 0V$			$\pm 100$	nA
<b>On Characteristics</b>						
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1	1.5	2.5	V
Drainsource onresistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 5A$		15	20	m $\Omega$
		$V_{GS} = 4.5V, I_D = 5A$		20	26	
Forward transconductance	$g_{FS}$	$V_{DS} = 10V, I_D = 5A$		13		S
<b>Dynamic Characteristics</b>						
Input Capacitance	$C_{iss}$	$V_{DS} = 20V, V_{GS} = 0V, f = 1MHz$		999		pF
Output Capacitance	$C_{oss}$			95.5		
Reverse Transfer Capacitance	$C_{rss}$			73.6		
Gate resistance	$R_g$	$V_{DS} = 0V, V_{GS} = 0V, f = 1MHz$		3.09		$\Omega$
<b>Switching Characteristics</b>						
Total Gate Charge	$Q_g$	$V_{DS} = 20V, V_{GS} = 10V, I_D = 5A$		10		nC
GateSource Charge	$Q_{gs}$			1.8		
GateDrain Charge	$Q_{gd}$			2.5		
Turnon delay time	$t_{d(on)}$	$V_{DD} = 15V, R_G = 3\Omega, V_{GS} = 10V, R_L = 3\Omega$		12		ns
Turnon rise time	$t_r$			3		
Turnoff delay time	$t_{d(off)}$			50		
Turnoff fall time	$t_f$			5		
<b>Diode Characteristics</b>						
Diode Forward Voltage	$V_{SD}$	$V_{GS} = 0V, I_S = 5A$			1.2	V

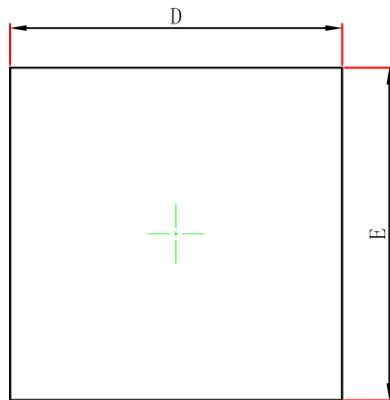
Notes :

1.  $R_{\theta JA}$  is measured with the device mounted on 1 in<sup>2</sup> FR4 board with 1oz. single side copper, in a still air environment with  $T_A = 25^\circ\text{C}$ .

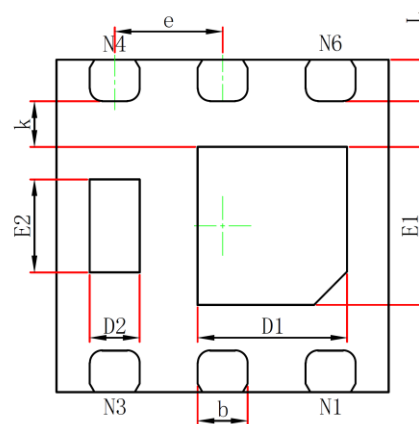
**Typical Characteristics**



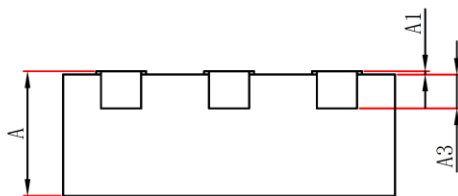
## DFN2X2-6L Package Information



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