

Product Summary

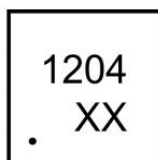
$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
12V	3.1m Ω @4.5V	20A
	3.2m Ω @4V	
	3.3m Ω @3.8V	
	3.5m Ω @3.1V	
	3.9m Ω @2.5V	

Feature

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

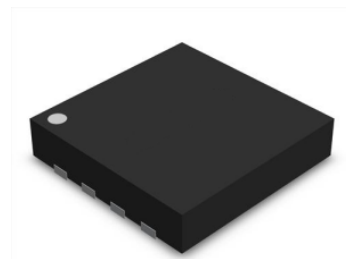
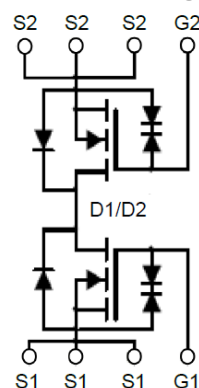
Application

- Load Switch
- DC/DC Converter

MARKING:


1204= Device Code

XX = Date Code

DFN3*3-8L

Schematic diagram

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}	± 12	V
Continuous Drain Current ^{1,4}	I_D	20	A
Pulsed Drain Current ²	I_{DM}	80	A
Power Dissipation ⁴	P_D	3	W
Thermal Resistance from Junction to Ambient ⁵	$R_{\theta JA}$	42	$^\circ\text{C/W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55~ +150	$^\circ\text{C}$

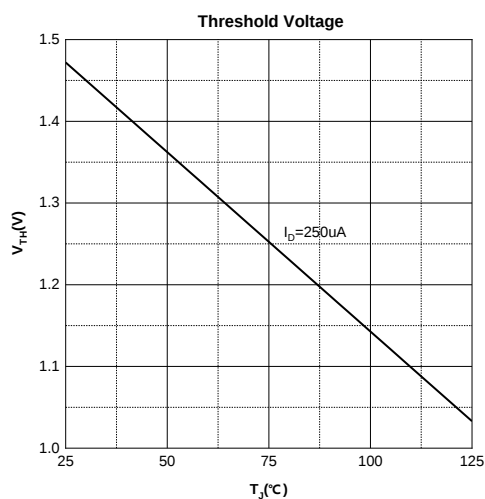
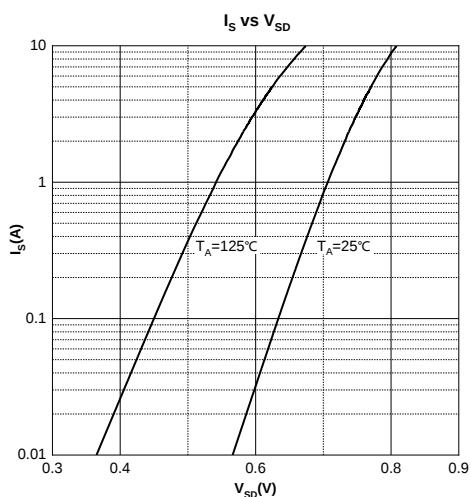
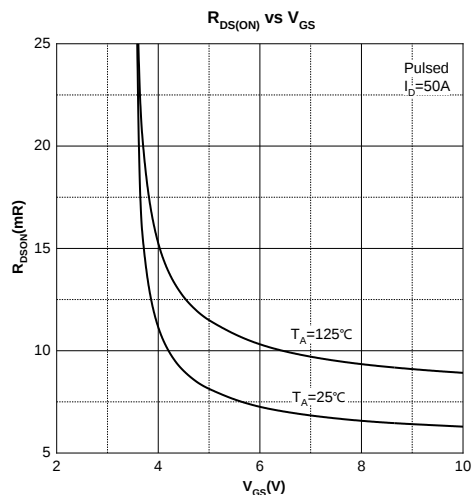
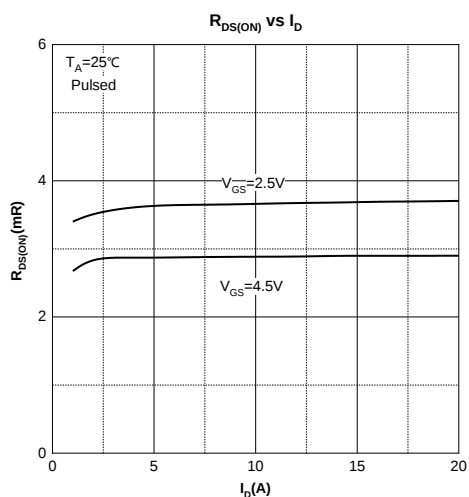
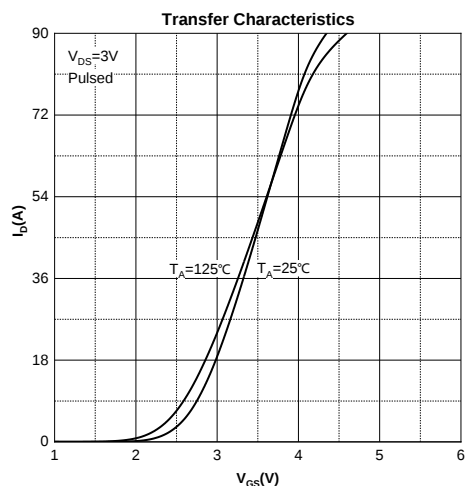
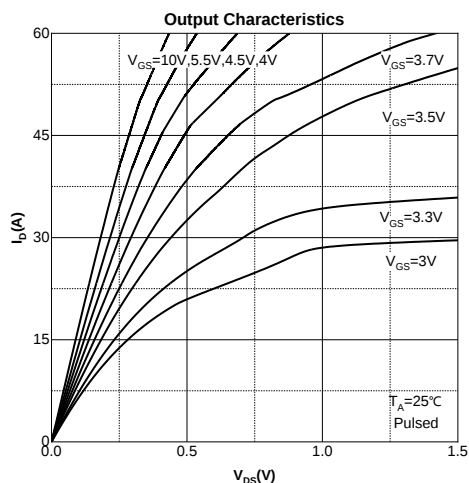
MOSFET ELECTRICAL CHARACTERISTICS($T_A = 25^\circ\text{C}$ unless otherwise noted)

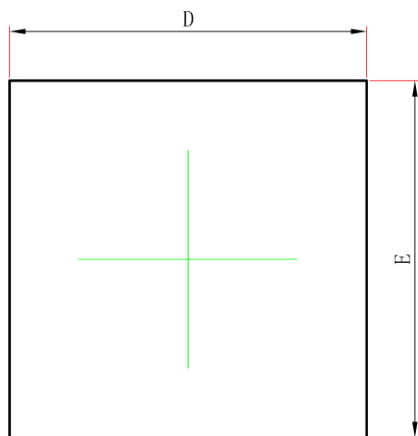
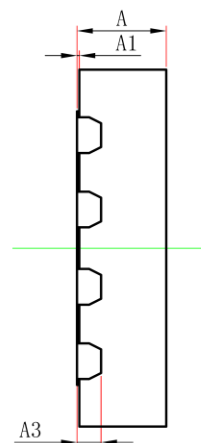
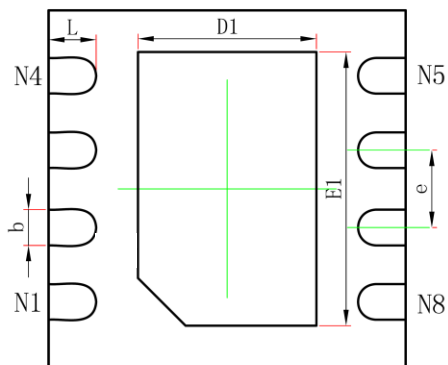
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	12			V
Zero gate voltage drain current	I _{DSS}	V _{DS} = 12V, V _{GS} = 0V			1	μA
Gate-body leakage current	I _{GSS}	V _{GS} = ±8V, V _{DS} = 0V			±2	μA
On Characteristics ³						
Gate threshold voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	0.4	0.65	1	V
Drainsource onresistance	R _{DS(on)}	V _{GS} = 4.5V, I _D = 3A		3.1	4.5	mΩ
		V _{GS} = 4V, I _D = 3A		3.2	4.8	
		V _{GS} = 3.8V, I _D = 3A		3.3	5	
		V _{GS} = 3.1V, I _D = 3A		3.5	5.3	
		V _{GS} = 2.5V, I _D = 3A		3.9	5.5	
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} = 6V, V _{GS} = 0V, f = 1MHz		2092		pF
Output Capacitance	C _{oss}			341		
Reverse Transfer Capacitance	C _{rss}			25		
Gate resistance	R _g	V _{DS} = 0V, V _{GS} = 0V, f = 1MHz		3420		Ω
Switching Characteristics						
Total Gate Charge	Q _g	V _{DS} = 10V, V _{GS} = 4.5V, I _D = 3A		30		nC
GateSource Charge	Q _{gs}			2.3		
GateDrain Charge	Q _{gd}			7.5		
Turnon delay time	t _{d(on)}	V _{DD} = 10V, R _G = 3Ω,V _{GS} = 5V, R _L = 1.35Ω		4.4		ns
Turnon rise time	t _r			8.7		
Turnoff delay time	t _{d(off)}			80		
Turnoff fall time	t _f			23		
Diode Characteristics						
Diode Forward Voltage ³	V _{SD}	V _{GS} = 0V, I _S = 1A			1.2	V

Notes :

- 1.The maximum current rating is limited by package.
- 2.Pulse Test : Pulse Width $\leq 10\mu s$, duty cycle $\leq 1\%$.
- 3.Pulse Test : Pulse Width $\leq 300\mu s$, duty cycle $\leq 2\%$.
- 4.The power dissipation P_D is limited by $T_{J(MAX)} = 150^\circ\text{C}$.
- 5.Device mounted on $1in^2$ FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^\circ\text{C}$.

Typical Characteristics



DFN3×3-8L Package Information

TOP VIEW

SIDE VIEW

BOTTOM 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	2.900	3.100	0.114	0.122
E	2.900	3.100	0.114	0.122
D1	1.450	1.650	0.057	0.065
E1	2.250	2.550	0.089	0.100
b	0.250	0.350	0.010	0.014
e	0.650BSC		0.026BSC	
L	0.300	0.500	0.012	0.020