

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-12V	13m Ω @-4.5V	-16A
	16m Ω @-2.5V	

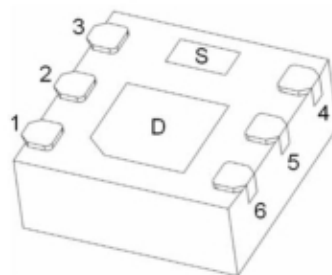
Feature

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

Applications

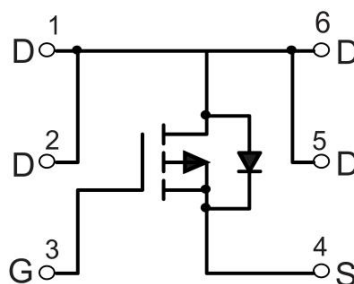
- PWM application
- Load switch
- Battery charge in cellular handset

Package

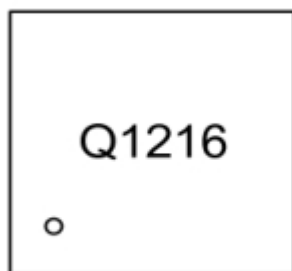


DFNWB2*2-6L-J

Circuit diagram



Marking



Q1216 =Device Code

Order information

Device	Package	Shipping
SP1216NQ	DFN2*2-6L	4000/Tape&Reel

Absolute maximum ratings

(T_a=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-source Voltage	V _{DS}	-12	V
Gate-source Voltage	V _{GS}	±12	V
Drain Current	I _D	T _c =25°C @ Steady State	mA
		T _c =70°C @ Steady State	
Pulsed Drain Current ¹	P _D	-64	mW
Total Power Dissipation @ T _c =25°C	R _{θJC}	18	°C/W
Thermal Resistance Junction-to-Case @ Steady State	T _J	6.9	°C
Junction and Storage Temperature Range	T _{STG}	-55 ~ +150	°C

Electrical characteristics

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

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV (BR)DSS	V _{GS} = 0V, I _D = -250μA	-12			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -12V, V _{GS} = 0V, T _C =25°C			-1	uA
Gate-Body Leakage Current	I _{GSS}	V _{GS} = ±10V, V _{DS} = 0V			±100	uA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-0.4	-0.7	-1.0	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = -4.5V, I _D = -10A		13	18	mΩ
		V _{GS} = -2.5V, I _D = -6.5A		16	22	
Dynamic Characteristics						
Input capacitance	C _{iss}	V _{DS} = -10V, V _{GS} = 0V, f = 1MHz		2050		pF
Output capacitance	C _{oss}			411		
Reverse transfer capacitance	C _{rss}			362		
Switching Characteristics						
Total gate charge	Q _g	V _{GS} = -10V , V _{DS} = -12V , I _D = -9.1A		30		nC
Gate-source charge	Q _{gs}			5.3		
Gate-drain charge	Q _{gd}			7.6		
Turn-on Delay Time	T _{d(on)}	V _{GS} = -10V, V _{DS} = -12V, I _D = -6A, R _G = 2.5Ω		14		nS
Turn-on Rise Time	T _r			20		
Turn-Off Delay Time	T _{d(off)}			95		
Turn-Off Fall Time	t _f			65		
Source-Drain Diode Characteristics						
Diode Forward Voltage	V _{SD}	I _S = -1A, V _{GS} = 0V		0.8	-1.2	V
Maximum Body-Diode Continuous Current	I _S				-13	A

Note:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.

Typical Characteristics

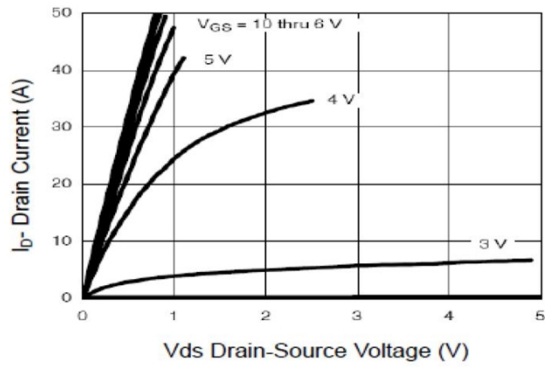


Figure1. Output Characteristics

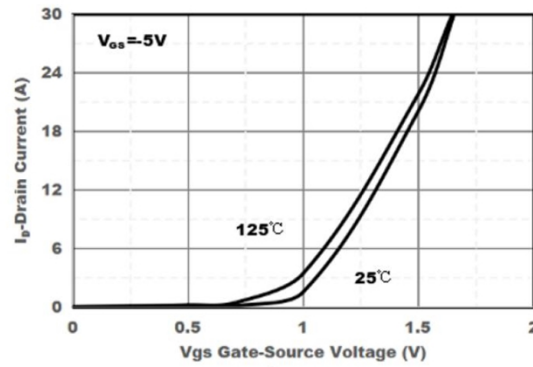


Figure2. Transfer Characteristics

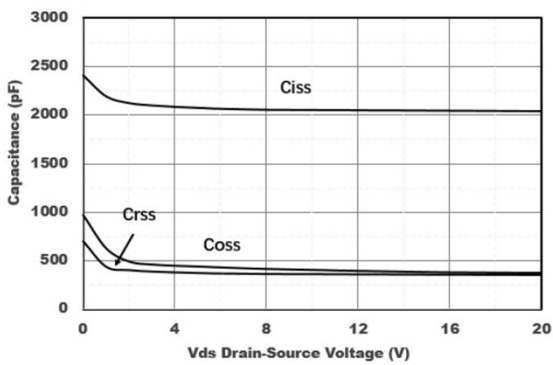


Figure3. Capacitance Characteristics

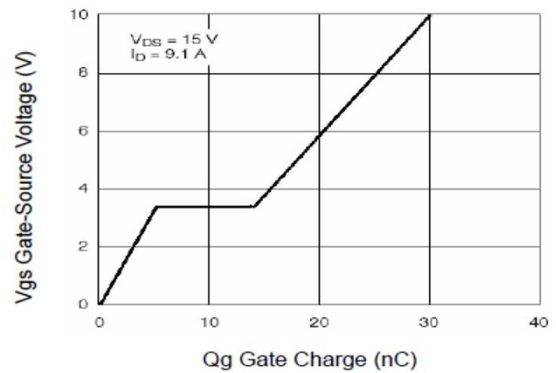


Figure4. Gate Charge

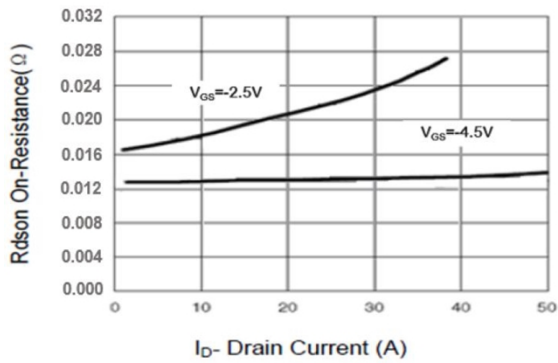


Figure5. Drain-Source on Resistance

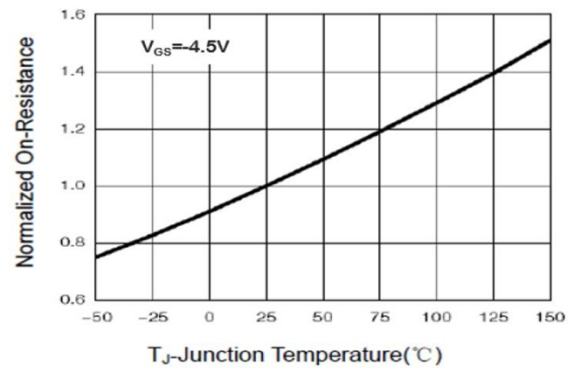


Figure6. Drain-Source on Resistance

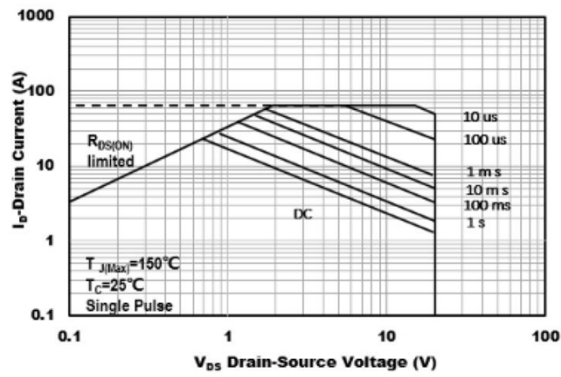


Figure7. Safe Operation Area

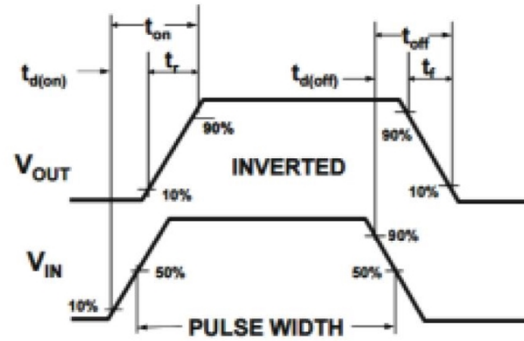
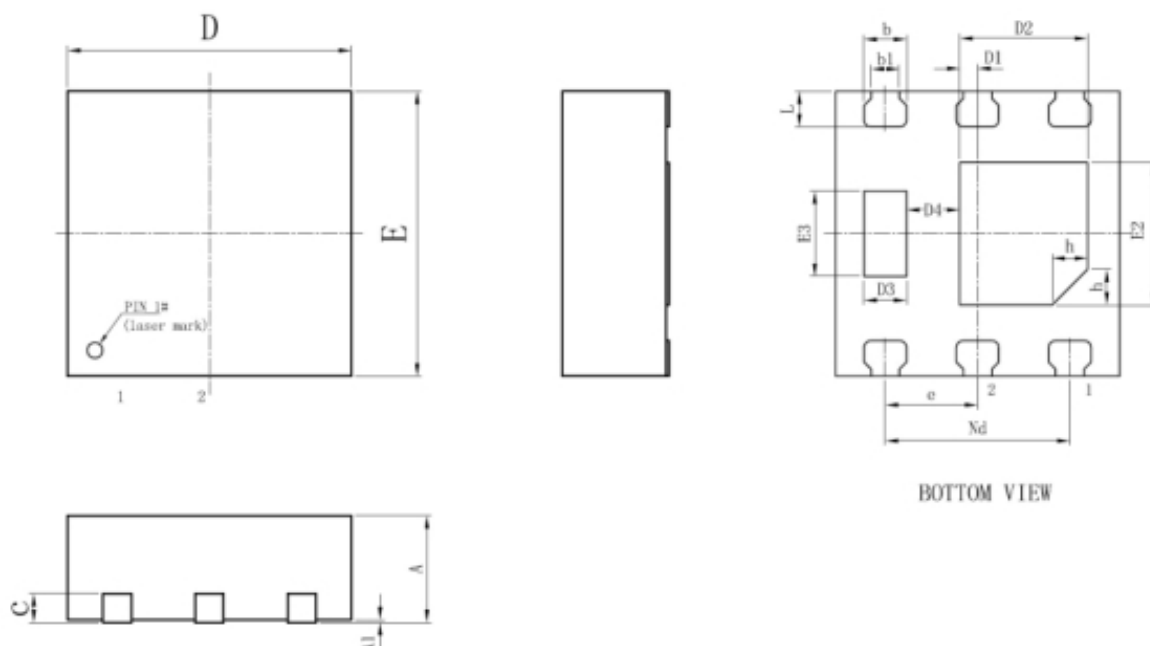


Figure8. Switching wave

DFN2*2-6L-J Package Information



Symbol	Dimensions In Millimeters		
	Min.	Typ.	Max.
A	0.70	0.75	0.80
A1		0.02	0.05
b	0.25	0.30	0.35
b1		0.20REF	
c		0.203REF	
D	1.90	2.00	2.10
D1	0.08	0.125	0.18
D2	0.85	0.90	0.95
D3	0.25	0.30	0.35
D4	0.33	0.375	0.43
e		0.65BSC	
Nd		1.30BSC	
E	1.90	2.00	2.10
E2	0.95	1.00	1.05
E3	0.55	0.60	0.65
L	0.20	0.25	0.30
h		0.25REF	