DESCRIPTION

The LXP1612B uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and high density cell Design for ultra low on-resistance. This device is suitable for use as a load switch or in PWM applications

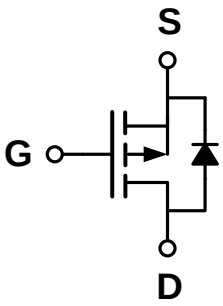
GENERAL FEATURES

- V_{DS} =-12V，I_D =-16A
  $R_{DS(ON)}$(Typ.)=16.5mΩ @V_{GS}=-2.5V
  $R_{DS(ON)}$(Typ.)=12mΩ @V_{GS}=-4.5V
- High power and current handing capability
- Lead free product is acquired
- Surface mount package

APPLICATION

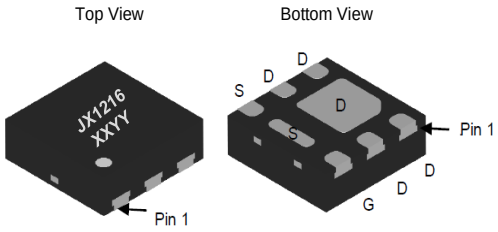
- PWM applications
- Load switch

SCHEMATIC DIAGRAM



PIN ASSIGNMENT

DFN2020-6L



Note：XXYY—Date code

ORDERING INFORMATION

Part Number	Storage Temperature	Package	Marking	Devices Per Reel
LXP1612B	-55°C to +150°C	DFN2020-6L	JX1216 XXYY	3000

ABSOLUTE MAXIMUM RATINGS

(T_A=25℃ unless otherwise noted)

parameter		symbol	limit	unit
Drain-source voltage		V_{DS}	-12	V
Gate-source voltage		V_{GS}	±12	V
Drain current-continuous	T_C=25℃	I_D	-16[a]	A
	T_C=70℃		-16[a]	
	T_A=25℃		-16[a,b,c]	
	T_A=70℃		-12[b,c]	
Drain-source Diode forward current	T_C=25℃	I_S	-16[a]	A
	T_A=25℃		-2.9[b,c]	
Maximum power dissipation	T_C=25℃	P_D	18	W
	T_C=70℃		12	
	T_A=25℃		3.5[b,c]	
	T_A=70℃		2.2[b,c]	
Operating junction Temperature range		T_J	-55~150	℃

THERMAL CHARACTERISTICS

Parameter		Symbol	Typ.	Max.	Unit
Maximum junction-to-ambient [b,d]	t ≤5 s	R_{thJA}	28	36	℃
Maximum junction-to-case (drain)	Steady state	R_{thJC}	5.3	6.5	

Notes:

a. Package limited; b. Surface mounted on 1" x 1" FR4 board

c. t = 5 s; d. Maximum under steady state conditions is 80 °C/W

ELECTRICAL CHARACTERISTICS (T_A=25℃ unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
OFF Characteristics						
Drain-source breakdown voltage	BV_{DSS}	V_{GS}=0V, I_D=-250μA	-12	-16.5	-	V
Zero gate voltage drain current	I_{DSS}	V_{DS}=-12V, V_{GS}=0V	-	-	-1	μA
Gate-body leakage	I_{GSS}	V_{DS}=0V, V_{GS}=±12V	-	-	±100	nA
ON Characteristics						
Gate threshold voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=-250μA	-0.45	-0.68	-1.2	V
Drain-source on-state resistance	$R_{DS(ON)}$	V_{GS}=-4.5V, I_D=-8A	-	12	15	mΩ
		V_{GS}=-2.5V, I_D=-6A	-	16.5	23	
Forward transconductance	gfs	V_{DS}=-6V, I_D=-7A	-	32	-	S
Dynamic Characteristics						
Input capacitance	C_{ISS}	V_{DS}=-6V ,V_{GS}=0V f=1.0MHz	-	1300	-	pF
Output capacitance	C_{OSS}		-	380	-	
Reverse transfer capacitance	C_{RSS}		-	280	-	
Switching Characteristics						
Turn-on delay time	$t_{D(ON)}$	V_{DD}=-10V I_D=-5A V_{GEN}=-4.5V R_L=1 。2ohm R_{GEN}=1ohm	-	11	-	ns
Rise time	tr		-	35	-	
Turn-off delay time	$t_{D(OFF)}$		-	30	-	
Fall time	tf		-	10	-	
Total gate charge	Qg	V_{DS}=-6V,I_D=-9A V_{GS}=-4.5V	-	13	-	nC
Gate-source charge	Qgs		-	3	-	
Gate-drain charge	Qgd		-	5	-	
DRAIN-SOURCE DIODE CHARACTERISTICS						
Diode forward voltage	V_{SD}	V_{GS}=0V,Is=-1.25A	-	-0.7	-1.2	V

Notes:

a. Pulse test: Pulse width ≤300 μs, duty cycle ≤2 %

b. Guaranteed by design, not subject to production testing

TYPICAL PERFORMANCE CHARACTERISTICS

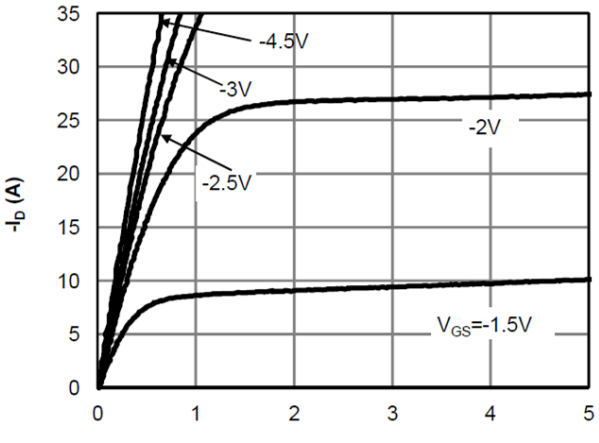


Fig 1: On-Region Characteristics

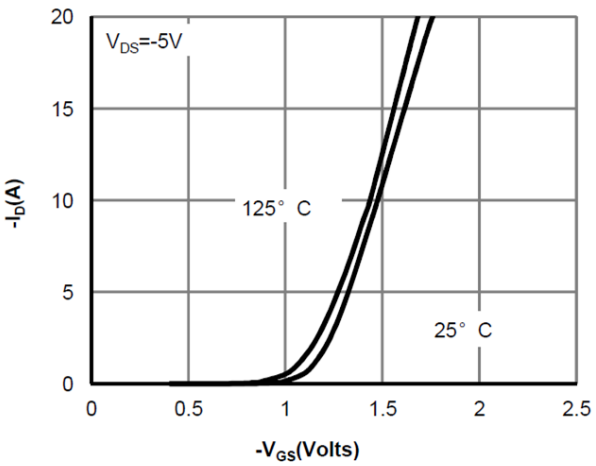


Figure 2: Transfer Characteristics

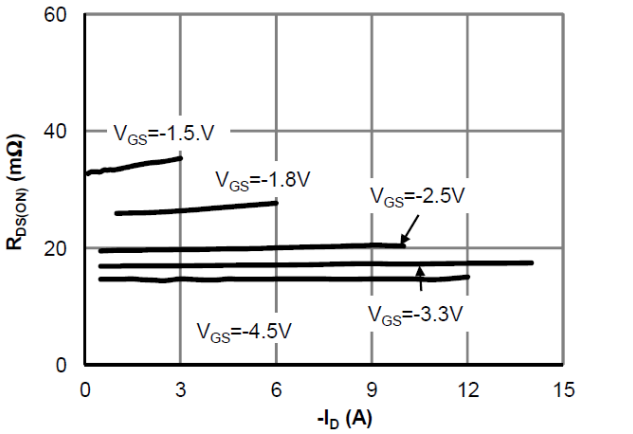


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

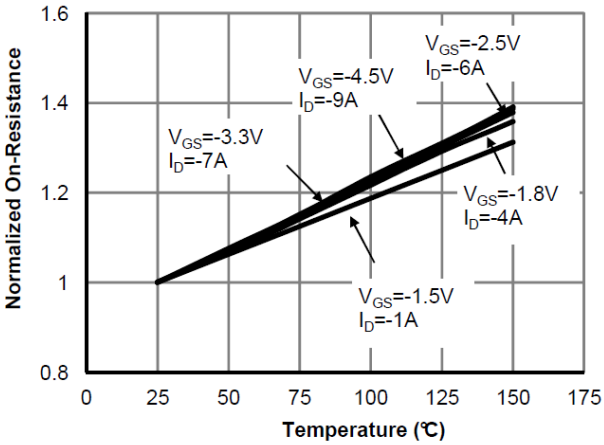


Figure 4: On-Resistance vs. Junction Temperature

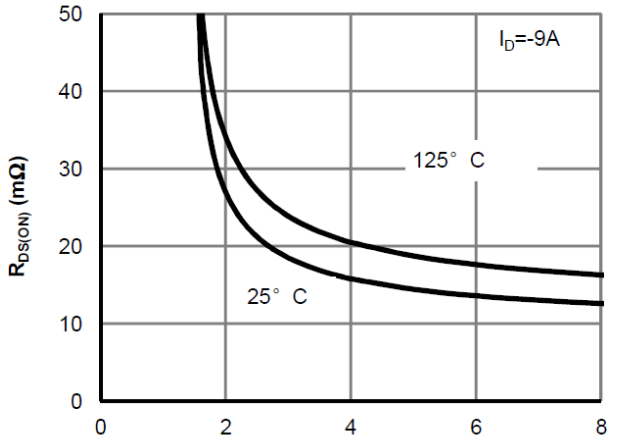


Figure 5: On-Resistance vs. Gate-Source Voltage

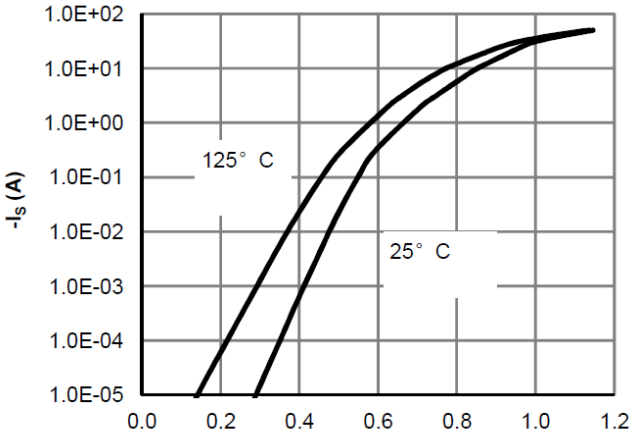


Figure 6: Body-Diode Characteristics

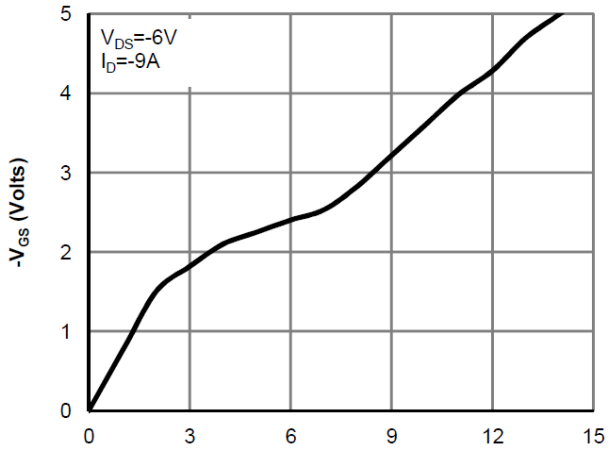


Figure 7: Gate-Charge Characteristics

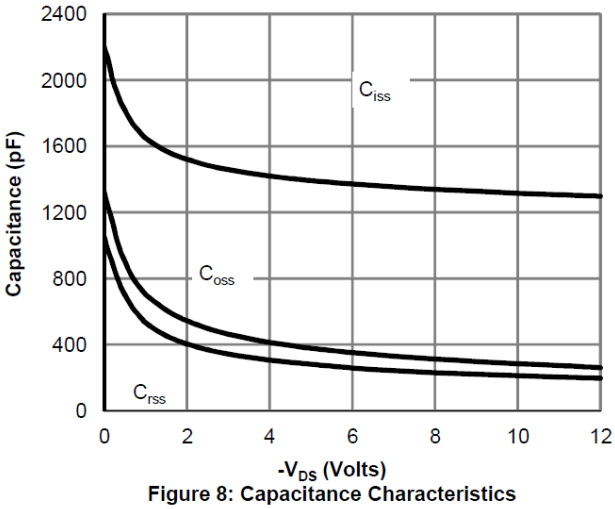


Figure 8: Capacitance Characteristics

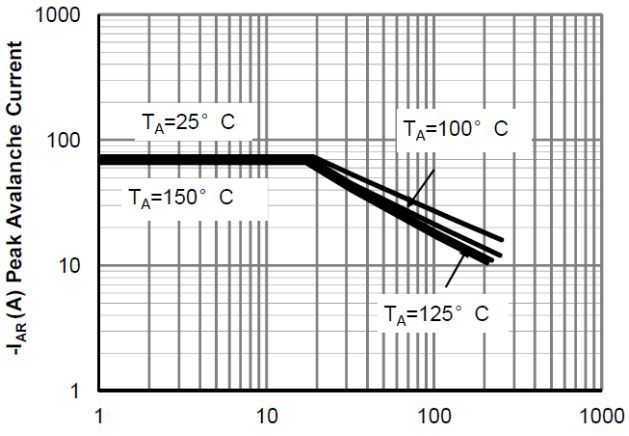


Figure 9: Single Pulse Avalanche capability

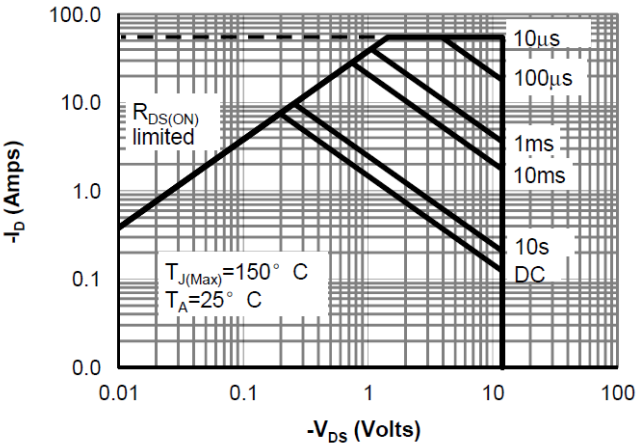


Figure 10: Maximum Forward Biased Safe Operating Area

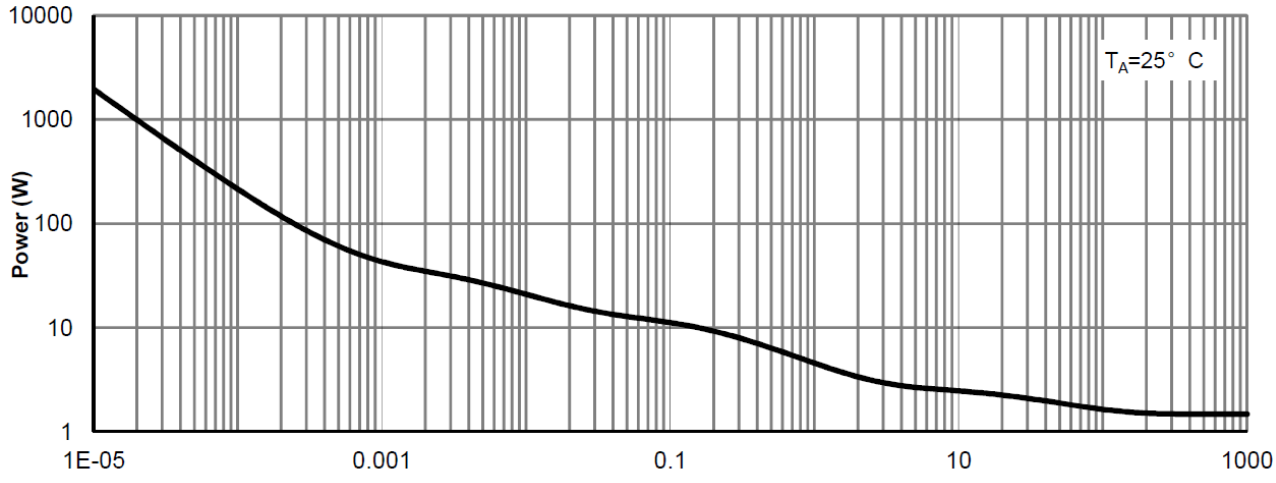


Figure 11: Single Pulse Power Rating Junction-to-Ambient

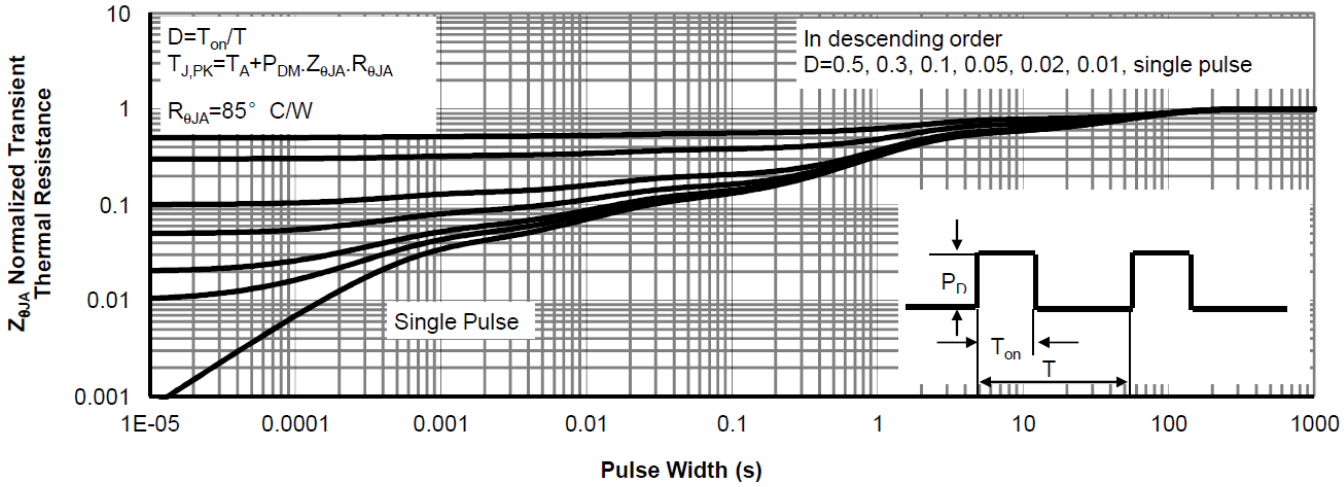
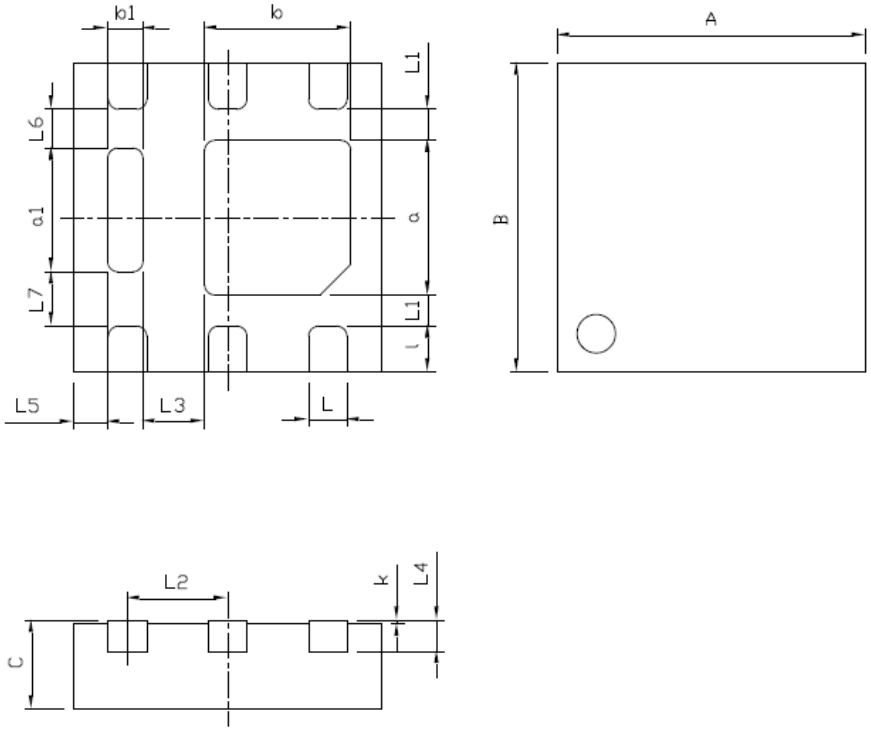


Figure 12: Normalized Maximum Transient Thermal Impedance

PACKAGE INFORMATION

- **DFN2020-6L**



Dimensions In Millimeterer			
Symbol	MIN	TYP	MAX
A	1.95	2.00	2.05
B	1.95	2.00	2.05
C	0.45	0.50	0.55
L	0.25	0.30	0.35
L1	0.10	0.20	0.30
L2	–	0.65	–
L3	0.30	0.40	0.50
L4	–	0.152	–
L5	0.12	0.22	0.32
L6	0.15	0.25	0.35
L7	0.23	0.33	0.43
a	0.90	1.00	1.10
a1	0.72	0.82	0.92
b	0.85	0.95	1.05
b1	0.13	0.23	0.33
l	0.25	0.30	0.35
k	0.00	–	0.05