Leading Circuit Protection
Products and Solutions

LXP0620C
P-channel Enhancement Mode Power MOSFET

FEATURES

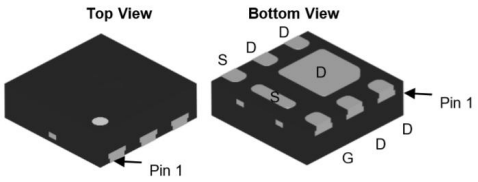
- Advanced Trench Technology
- Excellent $R_{DS(ON)}$ and Low Gate Charge
- Lead Free

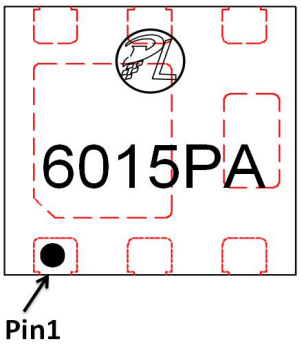
Application

- PWM Applications
- Load Switch
- Power Management

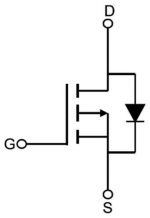
$V_{(BR)DSS}$	$R_{DS(on)}$ TYP	I_D
-20V	35mΩ@10V	-6A
	45mΩ@4.5V	

DFN2020-6L





Marking and pin Assignment
6015P = Device Code
A = Date Code*



Schematic Diagram

Package Marking and Ordering Information

Device Marking	Device	Outline	Package	Reel Size	Reel (pcs)	Per Carton (pcs)
6015P*	LXP0620C	TAPING	DFN2020-6L	7”	4000	180000

Absolute Maximum Ratings (T_A=25℃ unless otherwise specified)

Symbol	Parameter		Max.	Units
V_{DSS}	Drain-Source Voltage		-20	V
V_{GSS}	Gate-Source Voltage		±12	V
I_D	Continuous Drain Current	T_C = 25℃	-6	A
		T_C = 100℃	-4.1	
I_{DM}	Pulsed Drain Current note1		-24	A
E_{AS}	Single Pulsed Avalanche Energy note2		16	mJ
P_D	Power Dissipation	T_C = 25℃	11	W
$R_{\theta JC}$	Thermal Resistance, Junction to Case		11	℃/W
T_J, T_{STG}	Operating and Storage Temperature Range		-55 to +150	℃

Electrical Characteristics (T_J=25℃ unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristics						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D= -250μA	-20	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}= -20V, V_{GS}=0V,	-	-	-1	μA
I_{GSS}	Gate to Body Leakage Current	V_{DS}=0V, V_{GS}= ±12V	-	-	±100	nA
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D= -250μA	-0.4	-0.65	-1.0	V
$R_{DS(on)}$	Static Drain-Source on-Resistance Note3	V_{GS}= -4.5V, I_D= -5A	-	35	50	mΩ
		V_{GS}= -2.5V, I_D= -3A	-	45	60	
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}= -10V, V_{GS}=0V, f=1.0MHz	-	830	-	pF
C_{oss}	Output Capacitance		-	132	-	pF
C_{rss}	Reverse Transfer Capacitance		-	85	-	pF
Q_g	Total Gate Charge	V_{DD}= -10V, I_D= -2A, V_{GS}= -4.5V	-	8.8	-	nC
Q_{gs}	Gate-Source Charge		-	1.4	-	nC
Q_{gd}	Gate-Drain(“Miller”) Charge		-	1.9	-	nC
Switching Characteristics						
$t_{d(on)}$	Turn-on Delay Time	V_{DD}= -10V, I_D= -3.3A, R_{GEN}= 1Ω, V_{GS}= -4.5V,	-	10	-	ns
t_r	Turn-on Rise Time		-	32	-	ns
$t_{d(off)}$	Turn-off Delay Time		-	50	-	ns
t_f	Turn-off Fall Time		-	51	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I_S	Maximum Continuous Drain to Source Diode Forward Current		-	-	-6	A
I_{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	-24	A
V_{SD}	Drain to Source Diode Forward Voltage	V_{GS}=0V, I_S= -6A	-	-	-1.2	V

Notes:1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature

2. EAS condition:Starting T_J=25℃, V_{DD}=-10V, V_{GS}=-4.5V, R_G=25Ω，L=0.5mH, I_{AS}=-8A

3. Pulse Test: Pulse Width≤300μs, Duty Cycle≤2%

Typical Performance Characteristics

Figure 1: Output Characteristics

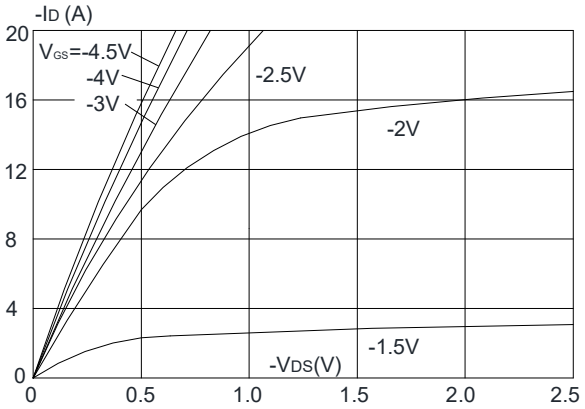


Figure 2: Typical Transfer Characteristics

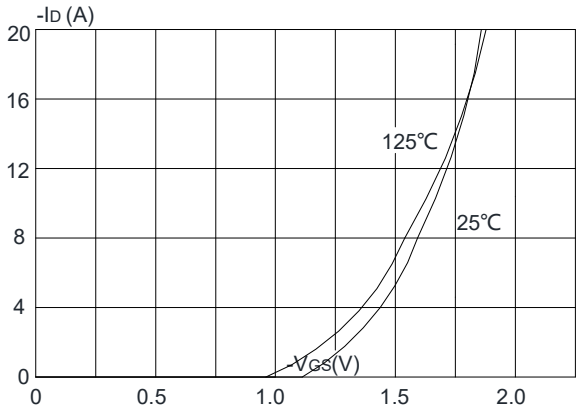


Figure 3: On-resistance vs. Drain Current

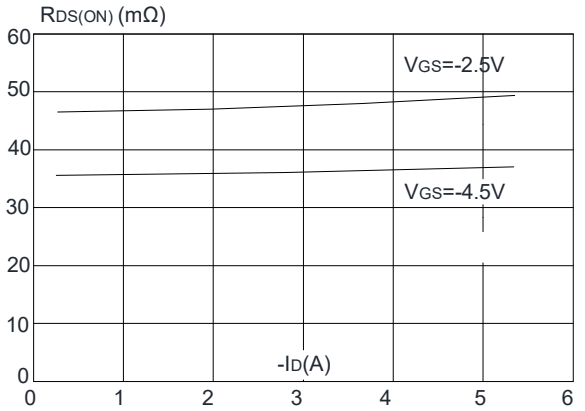


Figure 4: Body Diode Characteristics

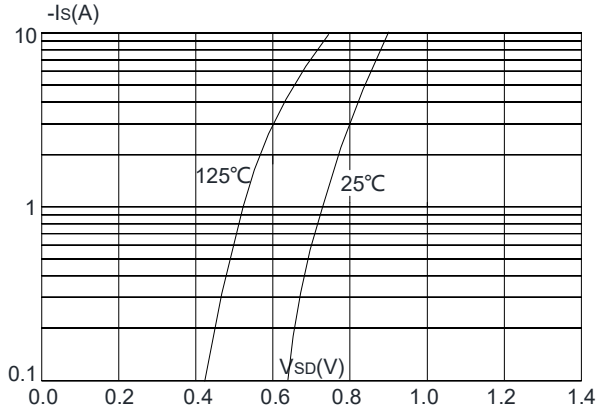


Figure 5: Gate Charge Characteristics

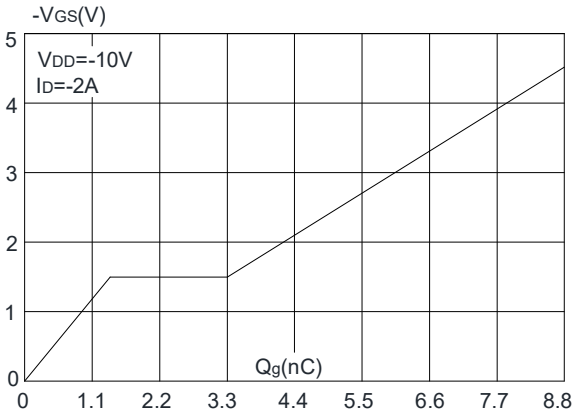


Figure 6: Capacitance Characteristics

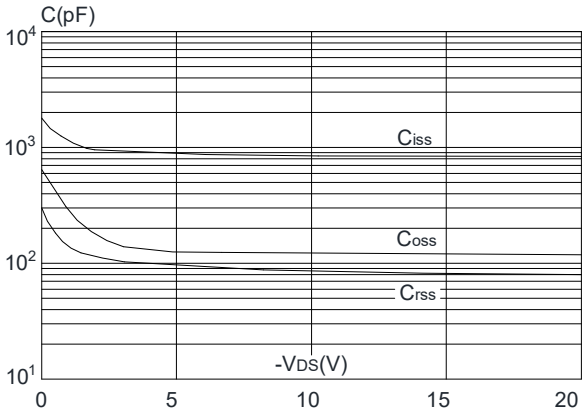


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

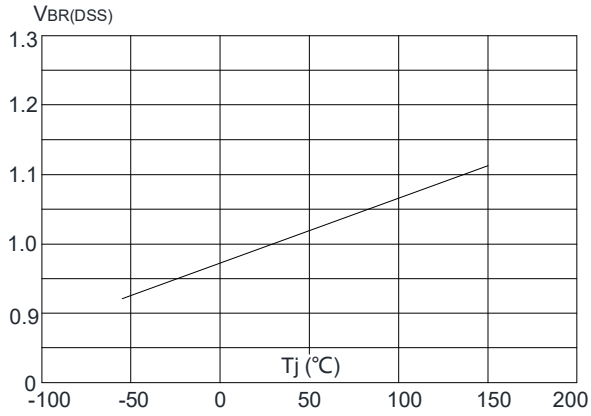


Figure 8: Normalized on Resistance vs. Junction Temperature

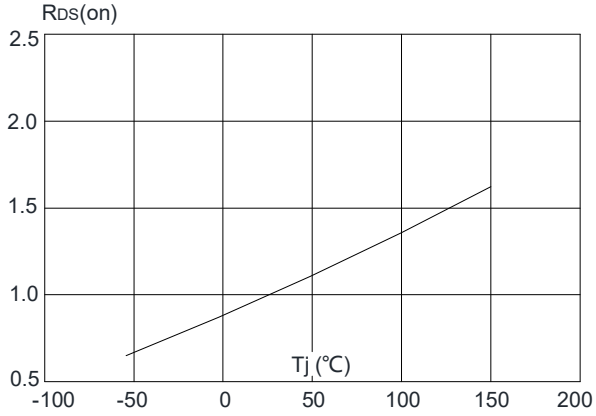


Figure 9: Maximum Safe Operating Area

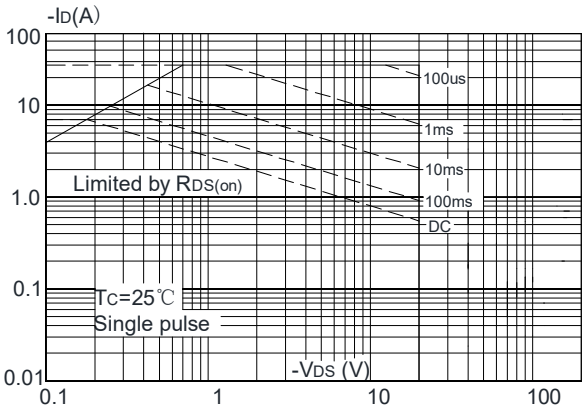


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

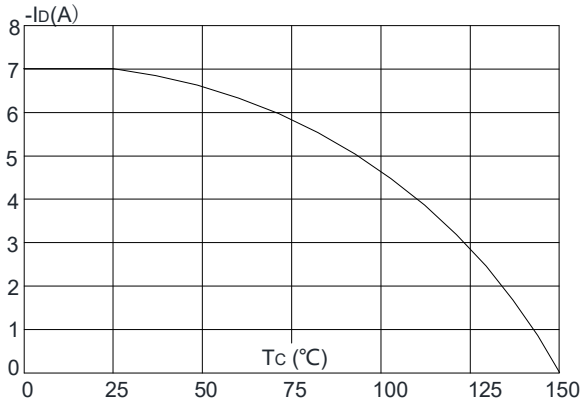
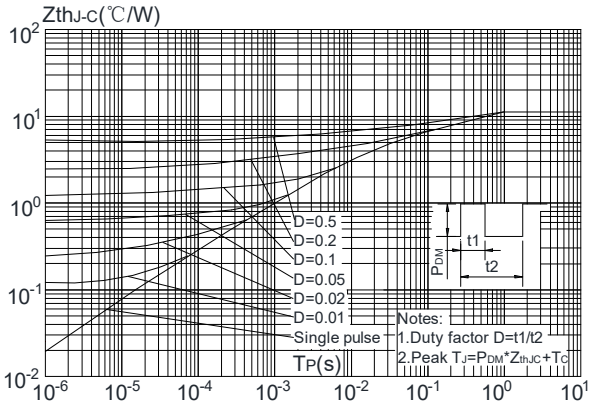
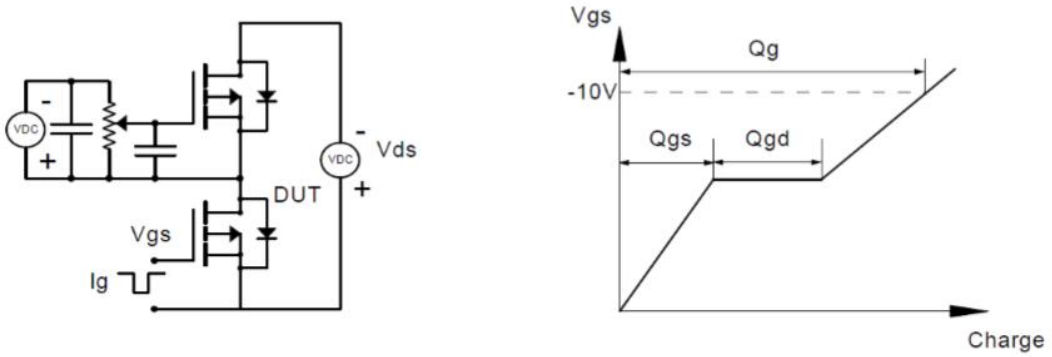


Figure 11: Maximum Effective Transient Thermal Impedance, Junction-to-Case

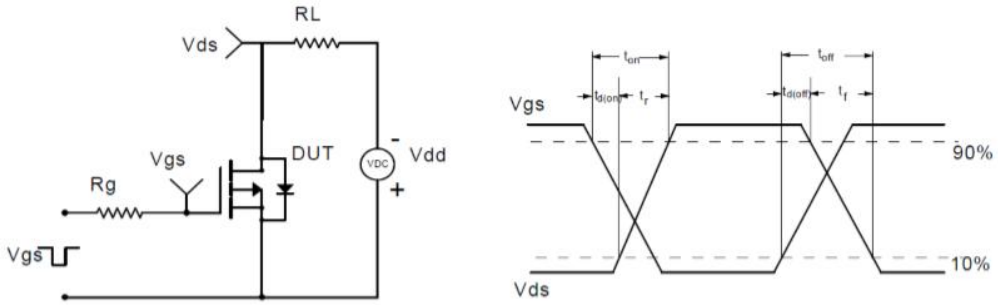


Test Circuit

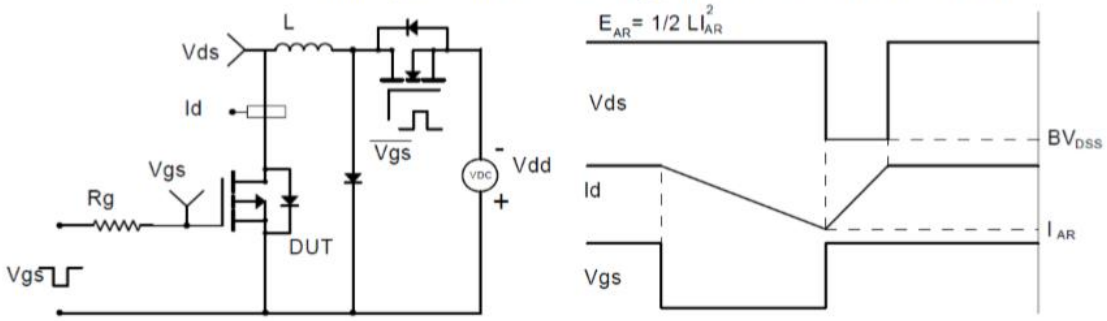
Gate Charge Test Circuit & Waveform



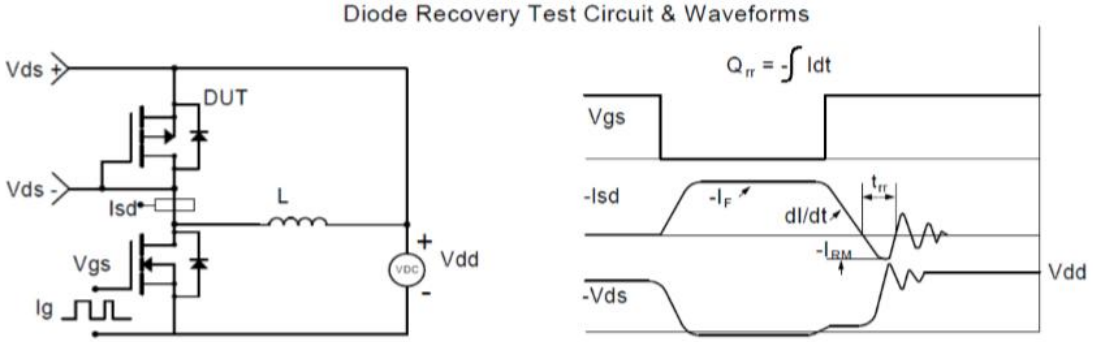
Resistive Switching Test Circuit & Waveforms



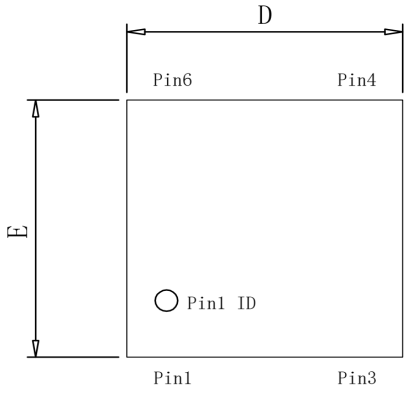
Unclamped Inductive Switching (UIS) Test Circuit & Waveforms



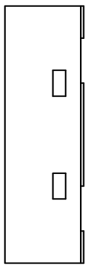
Diode Recovery Test Circuit & Waveforms



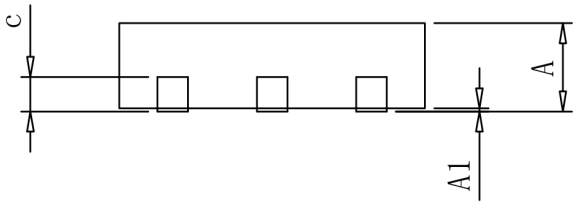
Package Mechanical Data-DFN2020-6L



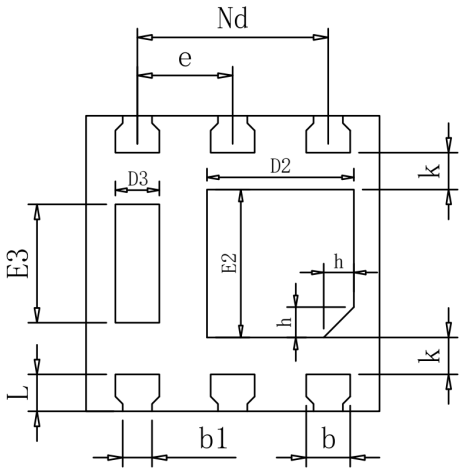
Top View



Side View



Side View



Bottom View

SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	0.50	0.55	0.60
A1	--	0.02	0.05
b	0.25	0.30	0.35
b1	0.15	0.20	0.25
c	0.203 REF		
D	1.90	2.00	2.10
D2	0.90	1.00	1.10
D3	0.20	0.30	0.40
Nd	1.30 BSC		
e	0.65 BSC		
E	1.90	2.00	2.10
E2	0.90	1.00	1.10
E3	0.70	0.80	0.90
h	0.155	0.205	0.255
k	0.20	0.25	0.30
L	0.20	0.25	0.30