

## PPAK5X6 Pin Configuration

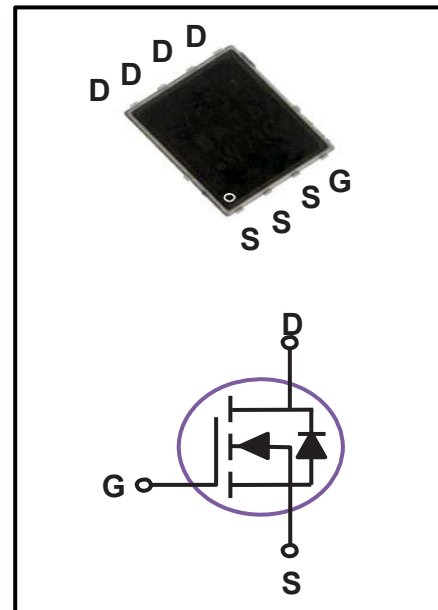
BV <sub>DSS</sub>	R <sub>DS(ON)</sub>	I <sub>D</sub>
65V	4.4mΩ	95A

**Features**

- 65V,95A,  $R_{DS(ON)} = 4.4m\Omega @ V_{GS} = 10V$
- Improved  $dv/dt$  capability
- Fast switching
- Green Device Available

**Applications**

- Networking
- Load Switch
- LED applications



### MAXIMUM RATINGS AND CHARACTERISTICS

@ 25°C Ambient Temperature (unless otherwise noted)

Parameter	Symbol	Rating	Units
Drain-Source Voltage	$V_{DS}$	65	V
Gate-Source Voltage	$V_{GS}$	±20	V
Drain Current – Continuous ( $T_C=25^\circ C$ )	$I_D$	95	A
Drain Current – Continuous ( $T_C=100^\circ C$ )		60	A
Drain Current – Pulsed <sup>1</sup>	$I_{DM}$	380	A
Single Pulse Avalanche Energy <sup>2</sup>	EAS	151.3	mJ
Single Pulse Avalanche Current <sup>2</sup>	IAS	55	A
Power Dissipation ( $T_C=25^\circ C$ )	$P_D$	96	W
Power Dissipation – Derate above 25°C		0.77	W/°C
Storage Temperature Range	$T_{STG}$	-50 to 150	°C
Operating Junction Temperature Range	$T_J$	-50 to 150	°C

### Thermal Characteristics

Parameter	Symbol	Typ.	Max.	Unit
Thermal Resistance Junction to ambient	$R_{\theta JA}$	---	62	°C/W
Thermal Resistance Junction to Case	$R_{\theta JC}$	---	1.3	°C/W

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS}=0V, I_D=250\mu A$	65	---	---	V
Drain-Source Leakage Current	$I_{DSS}$	$V_{DS}=60V, V_{GS}=0V, T_J=25^\circ\text{C}$	---	---	1	$\mu A$
		$V_{DS}=48V, V_{GS}=0V, T_J=85^\circ\text{C}$	---	---	10	$\mu A$
Gate-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 20V, V_{DS}=0V$	---	---	$\pm 100$	nA

### On Characteristics

Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=20A$	---	3.7	4.4	m $\Omega$
		$V_{GS}=4.5V, I_D=15A$	---	5.8	7.5	m $\Omega$
Gate Threshold Voltage	$V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=250\mu A$	1	1.6	2.5	V
Forward Transconductance	$g_{fs}$	$V_{DS}=10V, I_D=3A$	---	10	---	S

### Dynamic and switching Characteristics

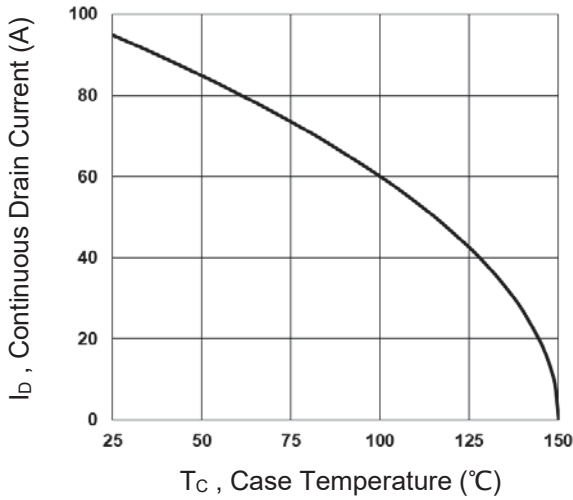
Total Gate Charge <sup>3,4</sup>	$Q_g$	$V_{DS}=48V, V_{GS}=10V, I_D=30A$	---	36	54	nC
Gate-Source Charge <sup>3,4</sup>	$Q_{gs}$		---	4.7	7.1	
Gate-Drain Charge <sup>3,4</sup>	$Q_{gd}$		---	13.5	20	
Turn-On Delay Time <sup>3,4</sup>	$T_{d(on)}$	$V_{DD}=48V, V_{GS}=10V, R_G=6\Omega, I_D=1A$	---	10.2	15	ns
Rise Time <sup>3,4</sup>	$T_r$		---	16	24	
Turn-Off Delay Time <sup>3,4</sup>	$T_{d(off)}$		---	42	63	
Fall Time <sup>3,4</sup>	$T_f$		---	38	57	
Input Capacitance	$C_{iss}$	$V_{DS}=48V, V_{GS}=0V, F=1\text{MHz}$	---	1675	2510	pF
Output Capacitance	$C_{oss}$		---	322	485	
Reverse Transfer Capacitance	$C_{rss}$		---	14	25	
Gate resistance	$R_g$	$V_{GS}=0V, V_{DS}=0V, F=1\text{MHz}$	---	1.2	---	$\Omega$

### Drain-Source Diode Characteristics and Maximum Ratings

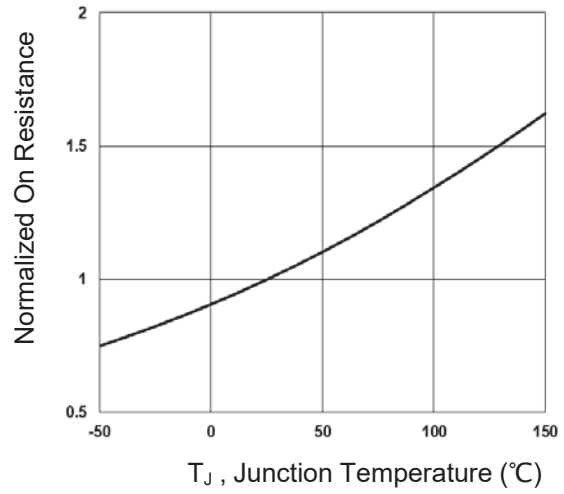
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Continuous Source Current	$I_S$	$V_G=V_D=0V, \text{Force Current}$	---	---	95	A
Pulsed Source Current	$I_{SM}$		---	---	190	A
Diode Forward Voltage	$V_{SD}$	$V_{GS}=0V, I_S=1A, T_J=25^\circ\text{C}$	---	---	1	V
Reverse Recovery Time <sup>3</sup>	$t_{rr}$	$V_R=50V, I_S=10A$	---	54	---	ns
Reverse Recovery Charge <sup>3</sup>	$Q_{rr}$	$di/dt=100A/\mu s, T_J=25^\circ\text{C}$	---	67	---	nC

Note :

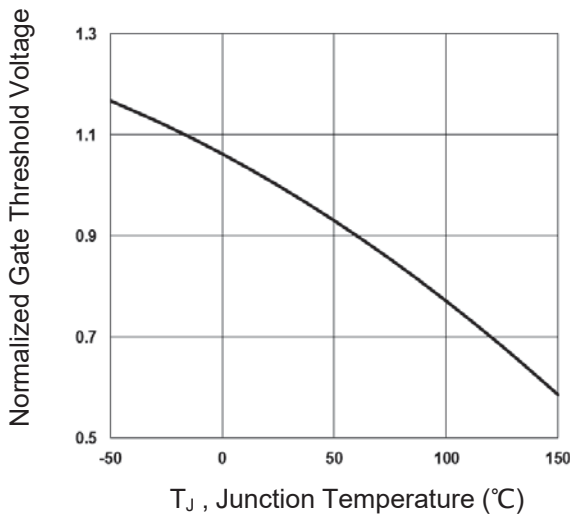
1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2.  $V_{DD}=25V, V_{GS}=10V, L=0.1\text{mH}, I_{AS}=55A, R_G=25\Omega, \text{Starting } T_J=25^\circ\text{C}$ .
3. The data tested by pulsed , pulse width  $\leq 300\mu s$  , duty cycle  $\leq 2\%$ .
4. Essentially independent of operating temperature.



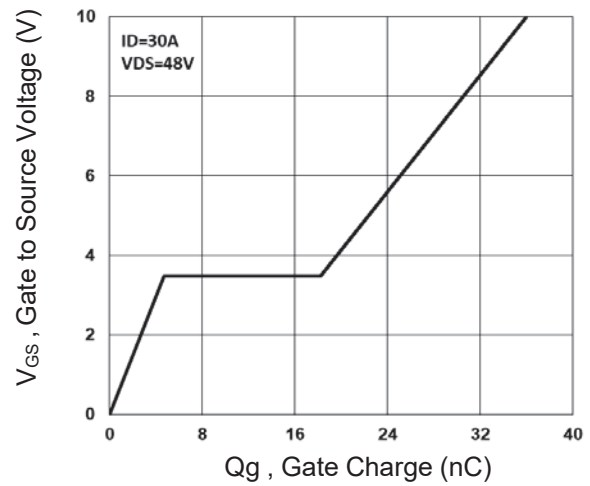
**Fig.1 Continuous Drain Current vs.  $T_c$**



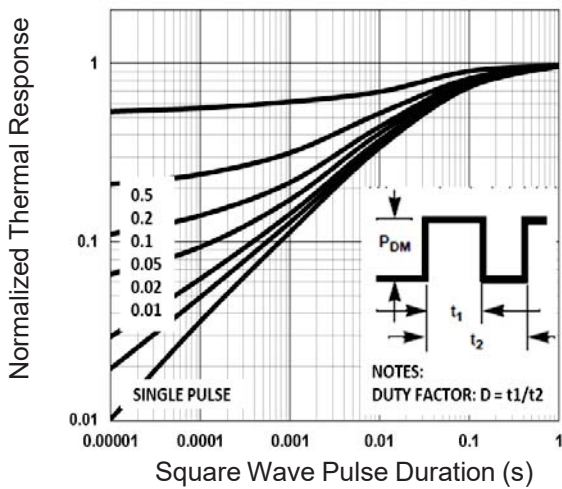
**Fig.2 Normalized  $R_{DS(on)}$  vs.  $T_j$**



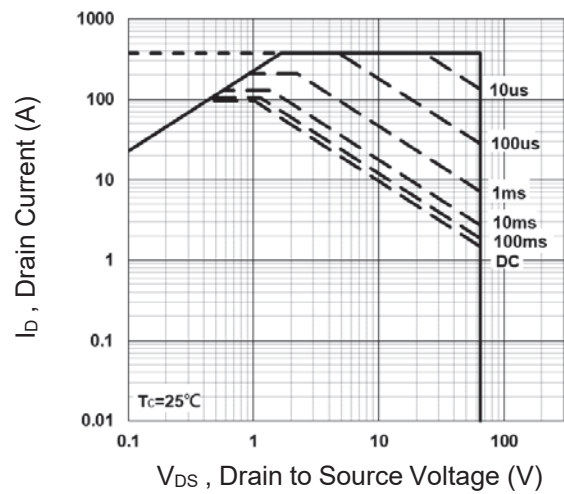
**Fig.3 Normalized  $V_{th}$  vs.  $T_j$**



**Fig.4 Gate Charge Characteristics**



**Fig.5 Normalized Transient Impedance**



**Fig.6 Maximum Safe Operation Area**

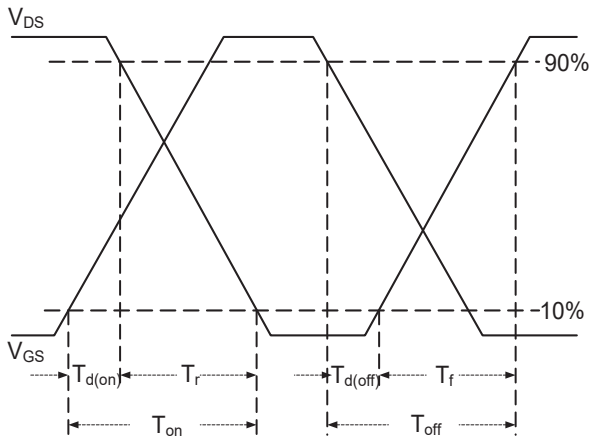


Fig.7 Switching Time Waveform

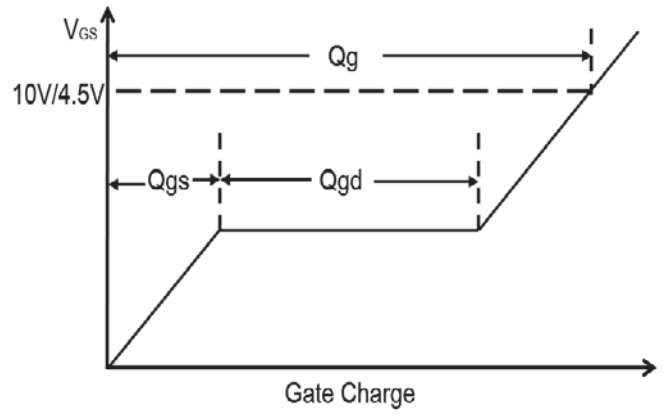
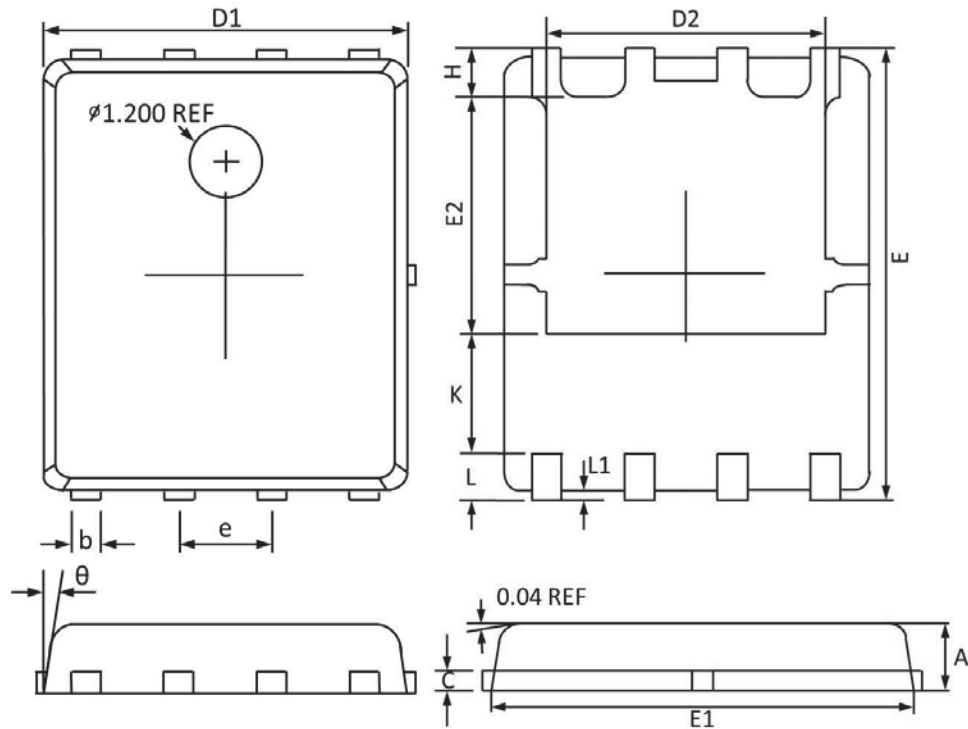


Fig.8 Gate Charge Waveform

# 65V N-Channel MOSFETS LDC6982BX-5

## PPAK5X6 PACKAGE INFORMATION



Symbol	Dimensions In Millimeters			Dimensions In Inches		
	MAX		MIN	MAX		MIN
A	1.100		0.800	0.043		0.031
b	0.510		0.330	0.020		0.013
C	0.300		0.200	0.012		0.008
D1	5.100		4.800	0.201		0.189
D2	4.100		3.610	0.161		0.142
E	6.200		5.900	0.244		0.232
E1	5.900		5.700	0.232		0.224
E2	3.780		3.350	0.149		0.132
e		1.27BS			0.05BSC	
H	0.700		0.410	0.028		0.016
K	1.500		1.100	0.059		0.043
L	0.710		0.510	0.028		0.020
L1	0.200		0.060	0.008		0.002
θ	12°		0°	12°		0°