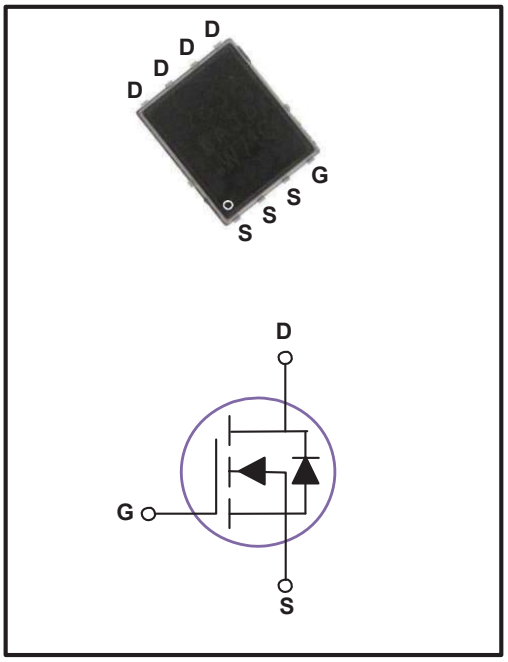
HFZT

65V N-Channel MOSFETS

LDC6976BX-5

PPAK5X6 Pin Configuration

BVDSS	RDSON	ID
65V	*3.5mΩ*	120A



Features

- 65V,120A, RDS(ON) =3.5mΩ@VGS = 10V
- Improved dv/dt capability
- Fast switching
- Green Device Available

Applications

- Networking
- Load Switc
- 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℃)	I_D	120	A
Drain Current – Continuous (T_C=100℃)		77	A
Drain Current – Pulsed[1]	I_{DM}	480	A
Single Pulse Avalanche Energy[2]	EAS	218	mJ
Single Pulse Avalanche Current[2]	IAS	66	A
Power Dissipation (T_C=25℃)	P_D	125	W
Power Dissipation – Derate above 25℃		1	W/℃
Storage Temperature Range	T_{STG}	-55 to 150	℃
Operating Junction Temperature Range	T_J	-55 to 150	℃

Thermal Characteristics

Parameter	Symbol	Typ.	Max.	Unit
Thermal Resistance Junction to ambient	$R_{\theta JA}$	---	62	℃/W
Thermal Resistance Junction to Case	$R_{\theta JC}$	---	1	℃/W

MOSFET ELECTRICAL CHARACTERISTICS T_A= 25c unless otherwise specified

Off Characteristics

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V , I_D=250uA	65	---	---	V
Drain-Source Leakage Current	I_{DSS}	V_{DS}=60V , V_{GS}=0V , T_J=25℃	---	---	1	uA
		V_{DS}=48V , V_{GS}=0V , T_J=85℃	---	---	10	uA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±20V , V_{DS}=0V	---	---	±100	nA

On Characteristics

Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V , I_D=30A	---	2.9	3.5	mΩ
		V_{GS}=4.5V , I_D=20A	---	4.1	5.3	mΩ
Gate Threshold Voltage	$V_{GS(th)}$	V_{GS}=V_{DS} , I_D =250uA	1.2	1.6	2.5	V
Forward Transconductance	gfs	V_{DS}=10V , I_D=3A	---	16	---	S

Dynamic and switching Characteristics

Total Gate Charge[3,4]	Q_g	V_{DS}=30V , V_{GS}=10V , I_D=60A	---	52	78	nC
Gate-Source Charge[3,4]	Q_{gs}		---	7	11	
Gate-Drain Charge[3,4]	Q_{gd}		---	18	27	
Turn-On Delay Time[3,4]	$T_{d(on)}$	V_{DD}=30V , V_{GS}=10V , R_G=6Ω I_D=60A	---	14	21	ns
Rise Time[3,4]	T_r		---	18	27	
Turn-Off Delay Time[3,4]	$T_{d(off)}$		---	39	59	
Fall Time[3,4]	T_f		---	14	21	
Input Capacitance	C_{iss}	V_{DS}=30V , V_{GS}=0V , F=1MHz	---	2400	3600	pF
Output Capacitance	C_{oss}		---	840	1260	
Reverse Transfer Capacitance	C_{rss}		---	37	56	
Gate resistance	R_g	V_{GS}=0V, V_{DS}=0V, F=1MHz	---	1.4	---	Ω

Drain-Source Diode Characteristics and Maximum Ratings

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Continuous Source Current	I_S	V_G=V_D=0V , Force Current	---	---	120	A
Pulsed Source Current	I_{SM}		---	---	240	A
Diode Forward Voltage	V_{SD}	V_{GS}=0V , I_S=1A , T_J=25℃	---	---	1	V
Reverse Recovery Time[3]	t_{rr}	V_R=50V, I_S=10A di/dt=100A/μs , T_J=25℃	---	65	---	ns
Reverse Recovery Charge[3]	Q_{rr}		---	100	---	nC

Note :

1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. V_{DD}=25V,V_{GS}=10V,L=0.1mH,I_{AS}=66A.,R_G=25Ω,Starting
3. The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%.
4. Essentially independent of operating temperature.

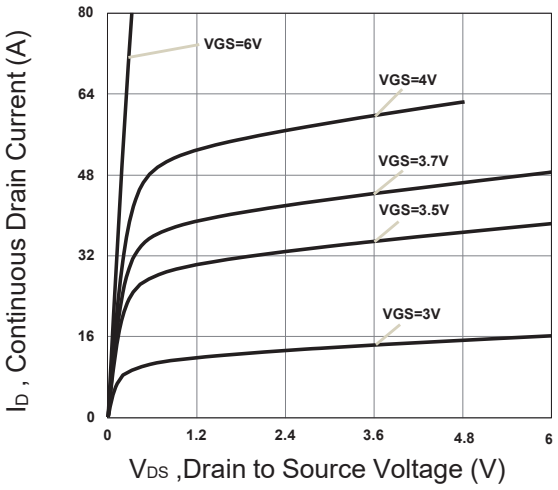


Fig.1 Typical Output Characteristics

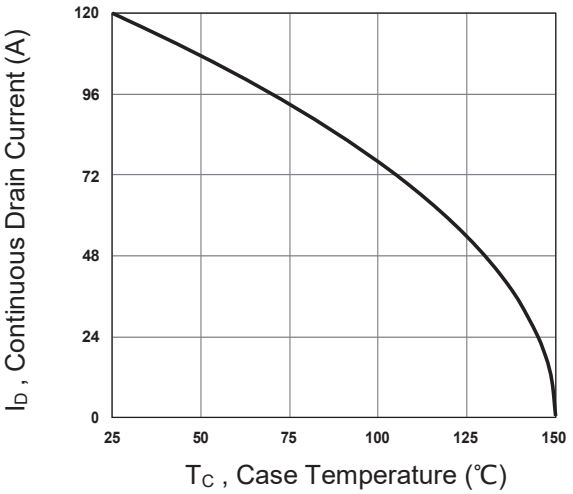


Fig.2 Continuous Drain Current vs. T_C

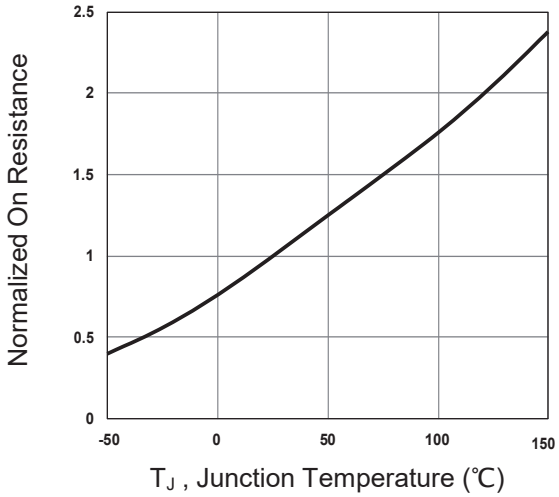


Fig.3 Normalized RDSON vs. T_J

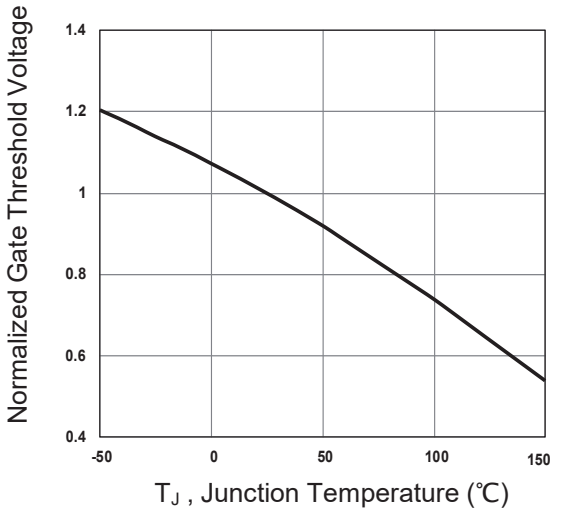


Fig.4 Normalized V_{th} vs. T_J

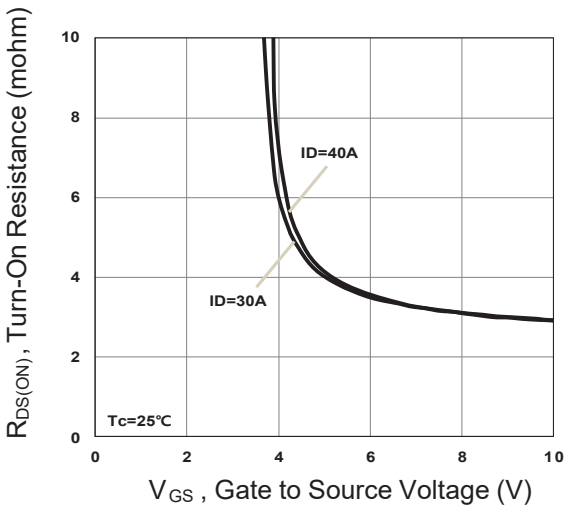


Fig.5 Turn-On Resistance vs. V_{GS}

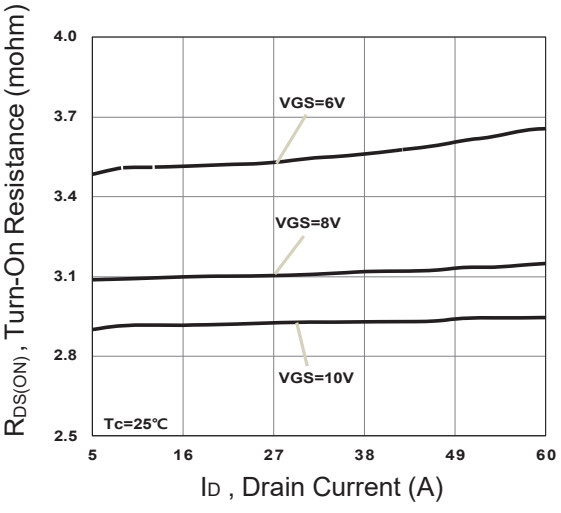


Fig.6 Turn-On Resistance vs. I_D

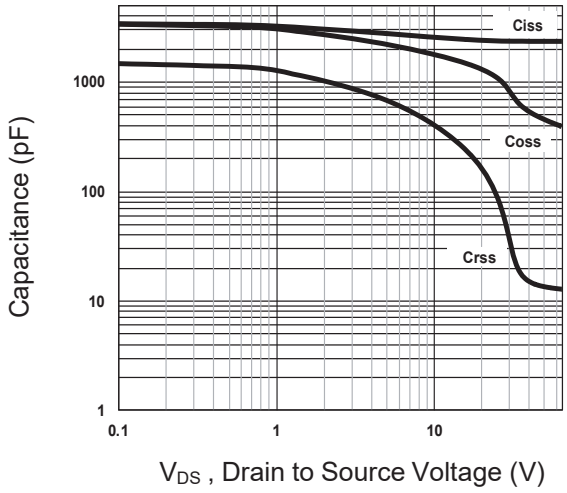


Fig.7 Capacitance Characteristics

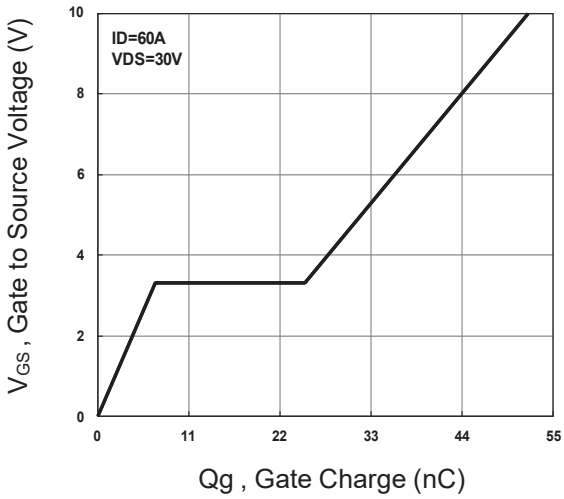


Fig.8 Gate Charge Characteristics

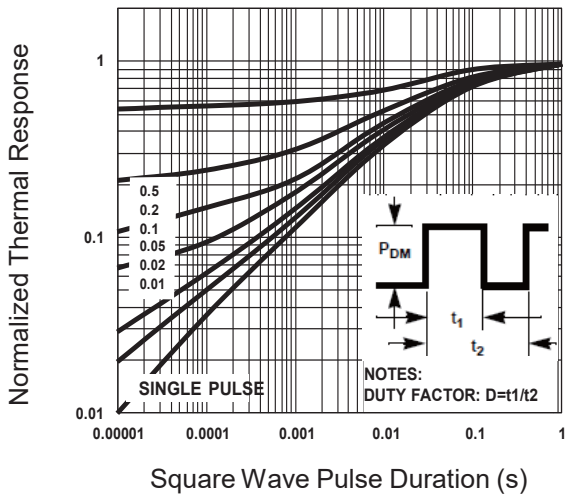


Fig.9 Normalized Transient Impedance

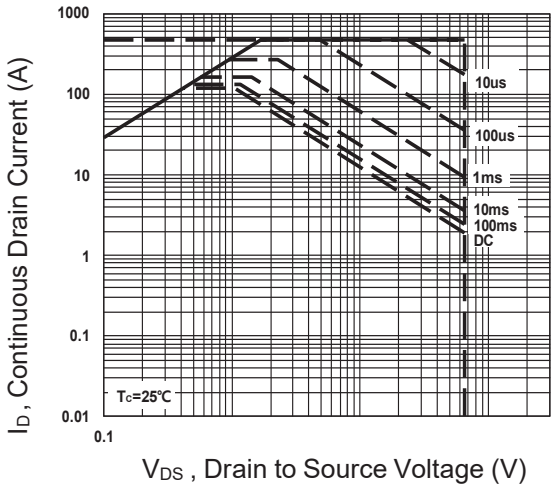


Fig.10 Maximum Safe Operation Area

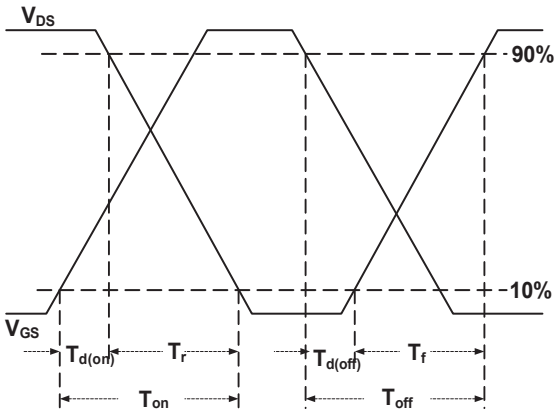


Fig.11 Switching Time Waveform

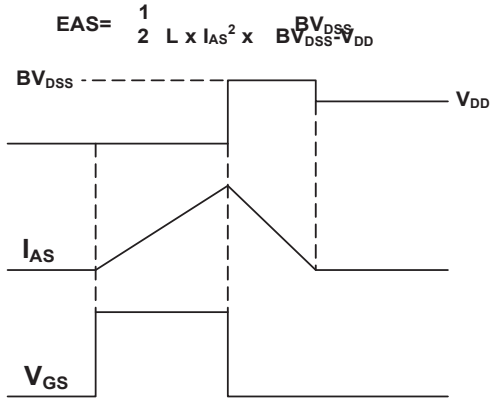
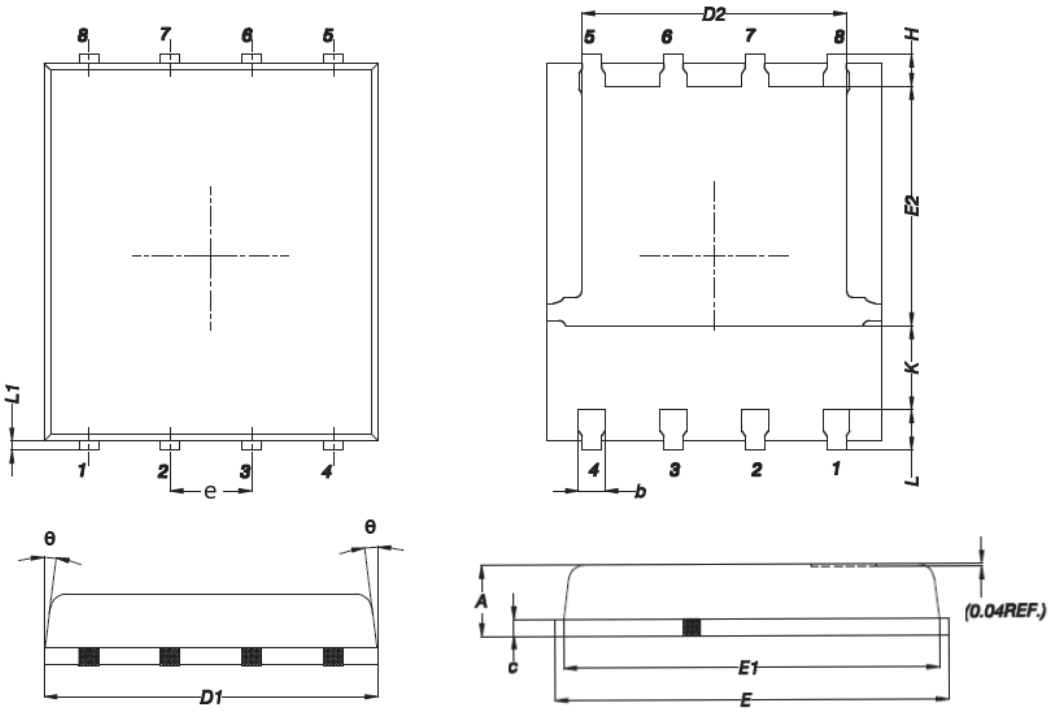


Fig.12 EAS Waveform

PPAK5x6 PACKAGE INFORMATION



Symbol	Dimensions In Millimeters				Dimensions In Inches			
	MAX			MIN	MAX			MIN
A	1.200			0.850	0.047			0.031
b	0.510			0.330	0.020			0.013
C	0.300			0.200	0.012			0.008
D1	5.400			4.800	0.212			0.189
D2	4.310			3.610	0.170			0.142
E	6.300			5.850	0.248			0.230
E1	5.960			5.450	0.235			0.215
E2	3.920			3.300	0.154			0.130
e		1.27BSC				0.05BSC		
H	0.650			0.380	0.026			0.015
K	---			1.100	---			0.043
L	0.710			0.380	0.028			0.015
L1	0.250			0.050	0.009			0.002
θ	12°			0°	12°			0°