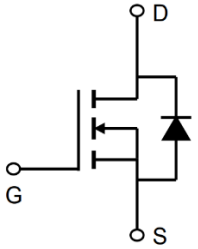
30V N-Channel Enhancement Mode MOSFET



General Features

V_{DS} = 30V I_D =80A

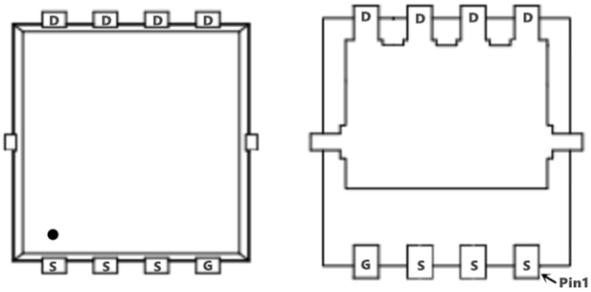
$R_{DS(ON)}$ < 6.5mΩ @ V_{GS}=10V （**Type：4.9mΩ**）

Application

Battery protection

Load switch

Uninterruptible power supply



Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
CTK80N03DF3	PDFN3*3-8L	CTK80N03DF3	5000PCS

Absolute Maximum Ratings@T_j=25°C(unless otherwise specified)

Symbol	Parameter	Value	Unit
VDS	Drain source voltage	30	V
VGS	Gate source voltage	±20	V
I_D@T_C=25℃	Continuous drain current[1)]	80	A
I_D@T_C=100℃	Continuous drain current[1)]	50	A
IDM	Pulsed drain current[2)]	162	A
IAS	Diode forward current	32	A
P_D@T_C=25℃	Power dissipation	62.5	W
EAS	Single pulsed avalanche energy)	67	mJ
Tstg，Tj	Operation and storage temperature	-55 to 150	℃
RθJC	Thermal resistance, junction-case	1.44	℃/W
RθJA	Thermal resistance, junction-ambient[4)]	62	℃/W

Electrical Characteristics (T_J=25℃, unless otherwise noted)

Symbol	Parameter	Test condition	Min.	Typ.	Max	Unit
BVDSS	Drain-source breakdown voltage	V_{GS}=0 V, I_D=250 μA	30	34		V
VGS(th)	Gate threshold voltage	V_{DS}=V_{GS}, I_D=250 μA	1.1	1.3	2.0	V
RDS(ON)	Drain-source on-state resistance	V_{GS}=10 V, I_D=30 A		4.9	6.5	mΩ
RDS(ON)	Drain-source on-state resistance	V_{GS}=4.5 V, I_D=15 A		7.1	8.5	mΩ
IGSS	Gate-source leakage current	V_{GS}=±20 V			±100	nA
IDSS	Drain-source leakage current	V_{DS}=30 V, V_{GS}=0 V			1	μA
Rg	Gate Resistance	f=1MHz		2.5		Ω
Ciss	Input capacitance	V_{GS}=0 V, V_{DS}=15 V, f=1MHz		1610		pF
Coss	Output capacitance			275		pF
Crss	Reverse transfer capacitance			185		pF
td(on)	Turn-on delay time	V_{GS}=10 V, V_{DS}=15 V, R_G=2 Ω, I_D=25 A		22.9		ns
t_r	Rise time			6.5		ns
td(off)	Turn-off delay time			45.7		ns
t_f	Fall time			20.4		ns
Q_g	Total gate charge	I_D=25 A, V_{DS}=15 V, V_{GS}=10 V		30		nC
Q_{gs}	Gate-source charge			5.8		nC
Qgd	Gate-drain charge			6.1		nC
Vplateau	Gate plateau voltage			3.6		V
VSD	Diode forward voltage	I_S=15 A, V_{GS}=0 V			1.2	V
trr	Reverse recovery time	I_S=25A, di/dt=100 A/μs		50.3		ns
Q_{rr}	Reverse recovery charge			45.1		nC
Irrm	Peak reverse recovery current			1.5		A

Note :

1、The data tested by surface mounted on a 1 inch 2 FR-4 board with 2OZ copper.

2、The data tested by pulsed , pulse width .The EAS data shows Max. rating .

3、The power dissipation is limited by 150℃ junction temperature

4、EAS condition: TJ=25℃, V_{DD}=24V,V_{GS}=10V,L=0.1Mh,I_{AS}=32A

5、The data is theoretically the same as ID and IDM , in real applications , should be limited by total power dissipation.

Typical Characteristics

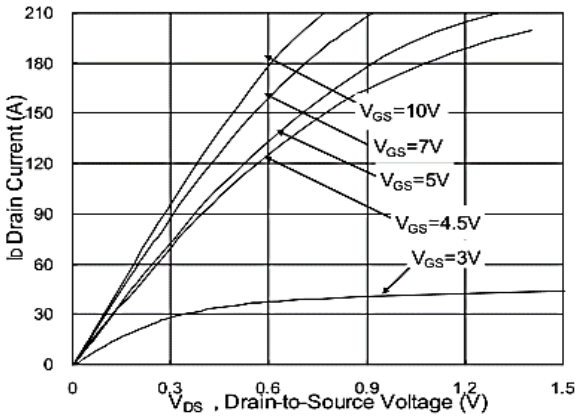


Fig.1 Typical Output Characteristics

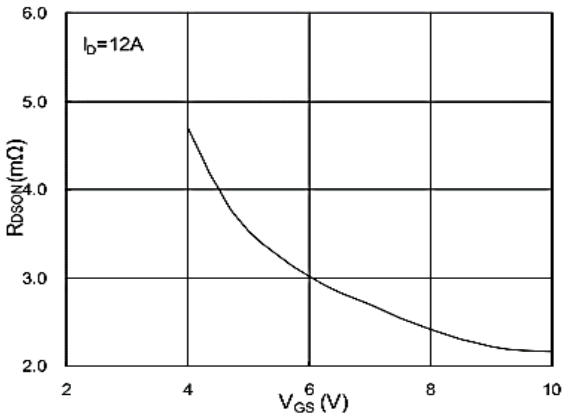


Fig.2 On-Resistance vs. G-S Voltage

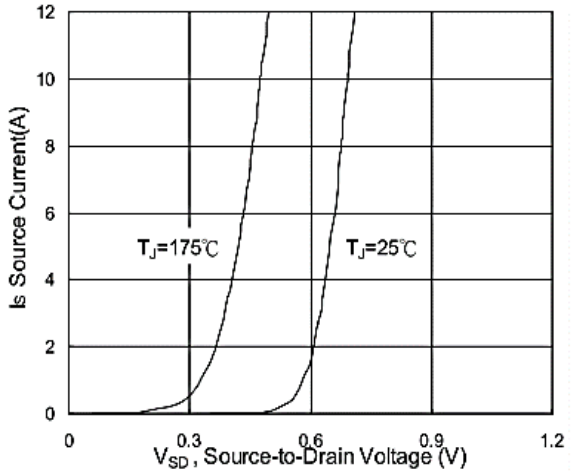


Fig.3 Forward Characteristics of Reverse

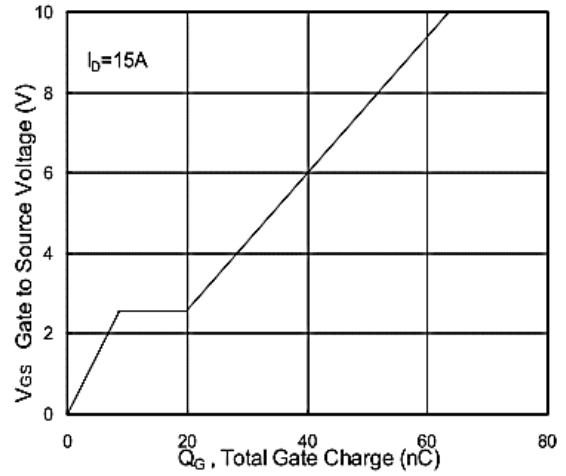


Fig.4 Gate-Charge Characteristics

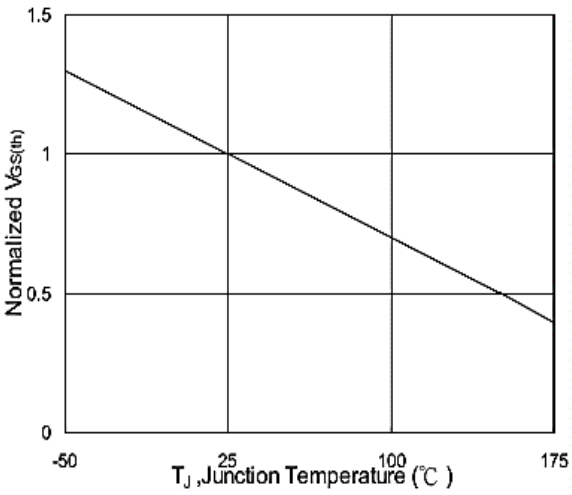


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

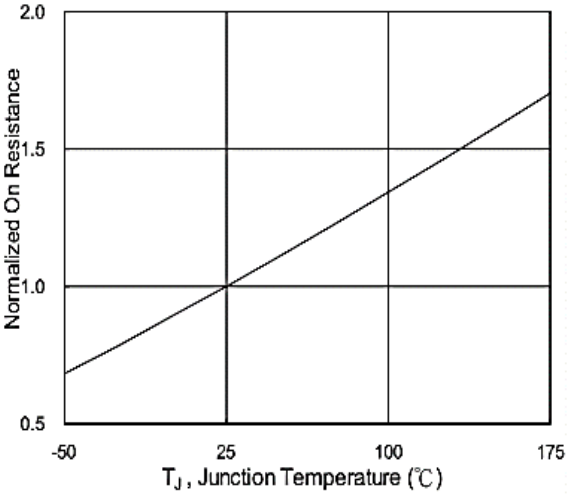


Fig.6 Normalized R_{DSON} vs. T_J

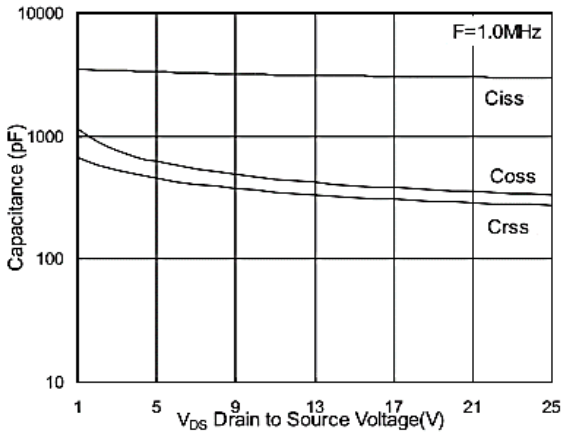


Fig.7 Capacitance

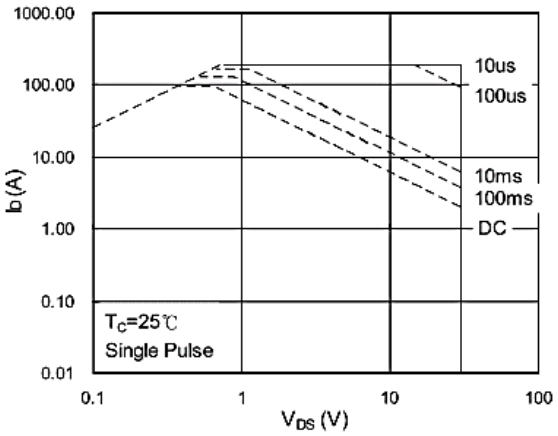


Fig.8 Safe Operating Area

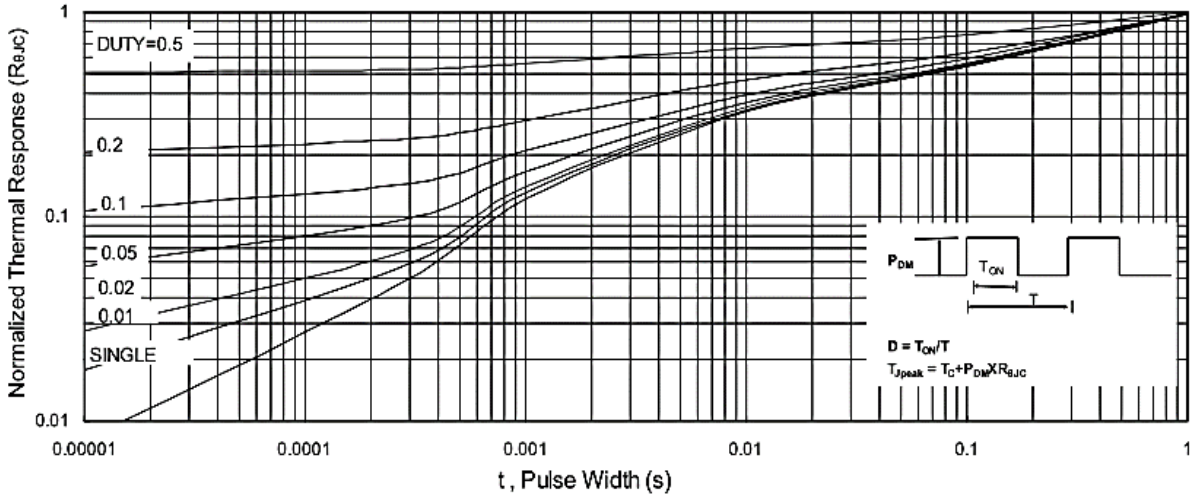


Fig.9 Normalized Maximum Transient Thermal Impedance

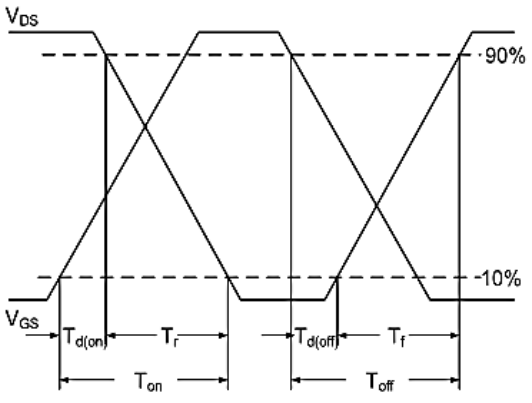


Fig.10 Switching Time Waveform

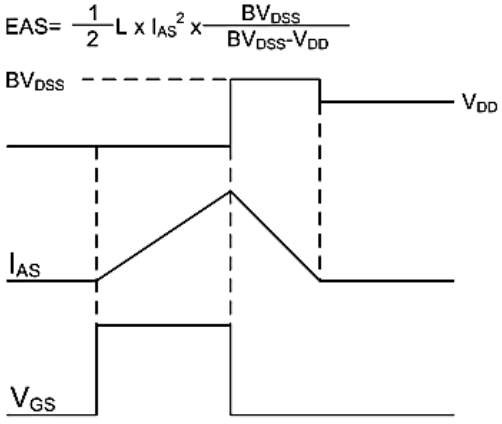
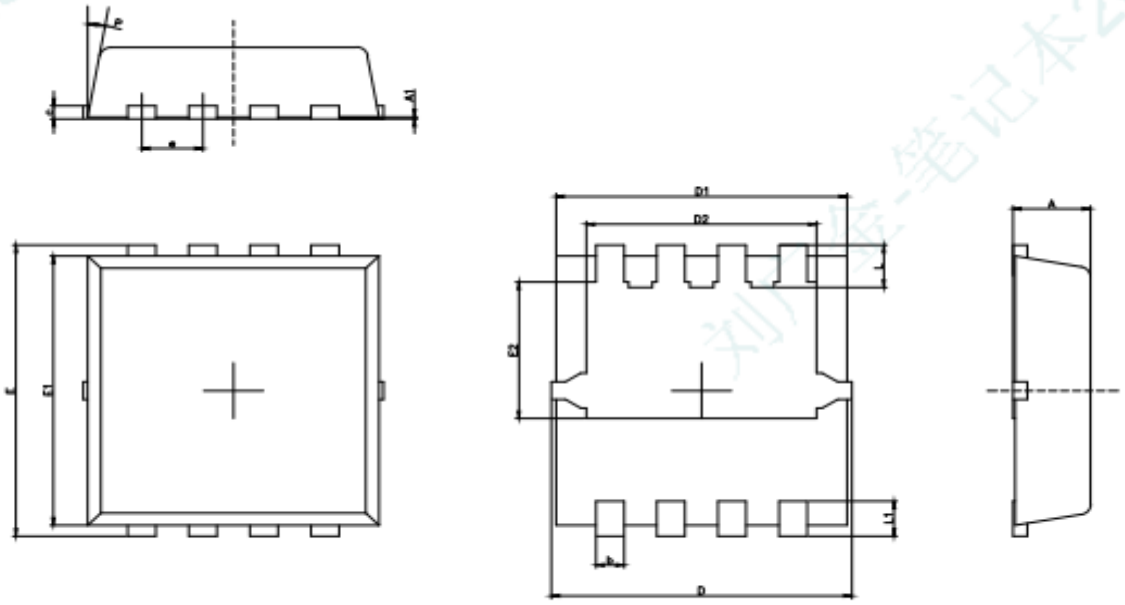


Fig.11 Unclamped Inductive Switching Waveform

Package Mechanical Data-PDFN3*3-8L



DIM.	MILLIMETER		
	MIN.	TYP.	MAX.
A	0.7	0.8	0.9
A1	0	0.025	0.05
b	0.2	0.3	0.4
c	0.14	0.152	0.17
D	3.1	3.2	3.4
D1	3.0	3.1	3.2
D2	2.3	2.45	2.6
E	3.15	3.35	3.45
E1	3.0	3.1	3.2
E2	1.35	1.51	1.65
e	0.55	0.65	0.75
L	0.35	0.48	0.6
L1	0.3	0.4	0.5
P	8°	10°	12°