Descriptions

The CT130P016ZF uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with low gate voltages .This device is suitable for use as a load switching application and a wide variety of other applications.

Features

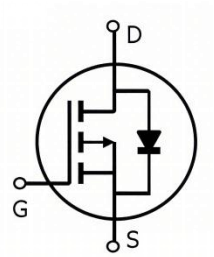
- Advanced trench MOSFET process technology
- Ultra low on-resistance with low gate charge

Parameter	Value	Unit
V_{DS}	-16	V
I_D	-16	A
$R_{DS(ON)(TYP)}$@V_{GS} = -4.5V	9	mΩ
$R_{DS(ON)(TYP)}$@V_{GS} = -2.5V	12	mΩ

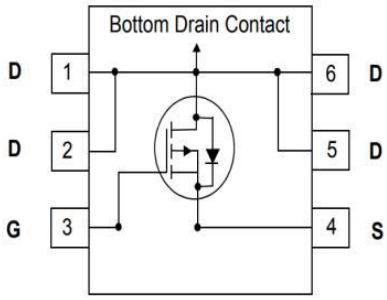
Applications

- PWM applications
- Load switch
- Power management

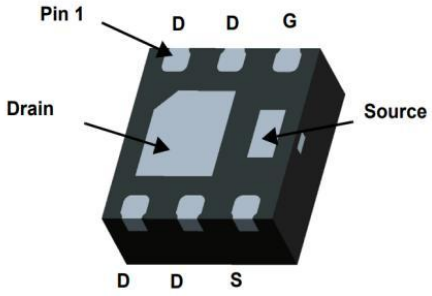
Equivalent Circuit & Pinning



Schematic Diagram



Pin configuration (Top view)



DFN2*2-6L

Absolute Maximum Ratings(Ta=25℃)

Characteristics	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	-16	V
Gate-Source Voltage	V_{GS}	±12	V
Drain Current-Continuous	I_D	-16	A
Drain Current-Pulsed (Note 1)	I_{DM}	-48	A
Maximum Power Dissipation	P_D	4.8	W
Operating Junction and Storage Temperature Rang	T_J,Tstg	-55~+150	℃

Thermal resistance ratings

Parameter	Symbol	Value	Units
Thermal Resistance Junction-to-Ambient	$R_{\theta JA}$	74	℃/W
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	18	℃/W

Electrical Characteristics(Ta=25℃)

Symbol	Characteristics	Test Conditions	Min	Typ	Max	Unit
Off Characteristics						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	I_D = -250μA , V_{GS}=0V	-16		-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = -12V, V_{GS}=0V	-	-	-1	μA
I_{GSS}	Gate-Body Leakage Current	V_{GS} =±12V,V_{DS}=0V			±100	nA
On Characteristics (note3)						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} =V_{GS}, I_D = -250μA	-0.4	-0.7	-1.2	V
$R_{DS(on)}$	Drain-Source On-State Resistance	V_{GS}=-4.5V, I_D = -6.7A	-	9	13	mΩ
		V_{GS} = -2.5V, I_D = -6.2A	-	12	17	mΩ
Rg	Gate Resistance	V_{DS} = 0V,V_{GS} =0V, f=1.0MHz	20	-	-	S
Dynamic Characteristics (note4)						
Ciss	Input Capacitance	V_{DS}=-8V, V_{GS} =0V, f=1.0MHz	-	2895		pF
Crss	Reverse Transfer Capacitance		-	268		pF
Coss	Output Capacitance		-	397		pF
Switching Characteristics (note4)						
t_D(on)	Turn-On Delay Time	V_{GS} = -4.5V, V_{DD} = -8V, I_D = -2A, R_{GEN} =3Ω	-	15	-	ns
tr	Turn-On Rise Time		-	10	-	ns
t_D(off)	Turn-Off Delay Time		-	17	-	ns
tf	Turn-Off Fall Time		-	13	-	ns
Qg	Gate Resistance	V_{DS} = -8V, I_D=-2A, V_{GS} = -4.5V	-	38	-	nc
Qgs	Gate Source Charge		-	38	-	nc
Qgd	Gate Drain Charge			92	-	nc
Drain-Source Body Diode Characteristics						
V_{SD}	Diode Forward Voltage (note3)	I_S =-2A, V_{GS} =0V	-	-	-1.1	V
I_S	Diode Forward Current (note2)		-	-	-16	A

Notes
1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t≤10 sec.
3. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle≤2%.
4. Guaranteed by design, not subject to production.

Electrical Characteristic Curve

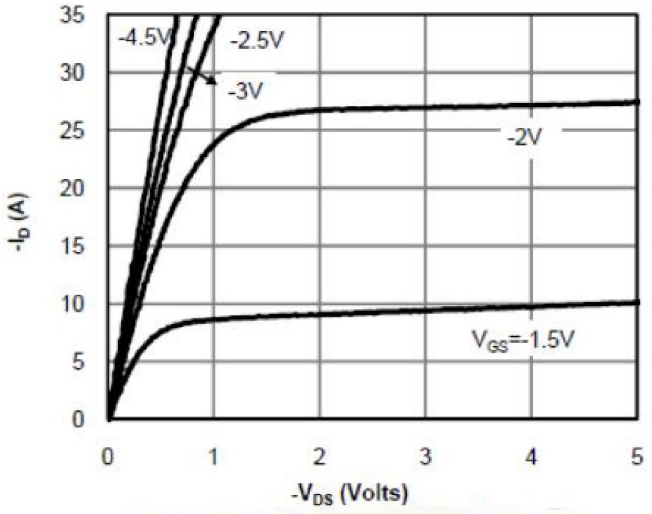


Figure 1. On-Region Characteristics

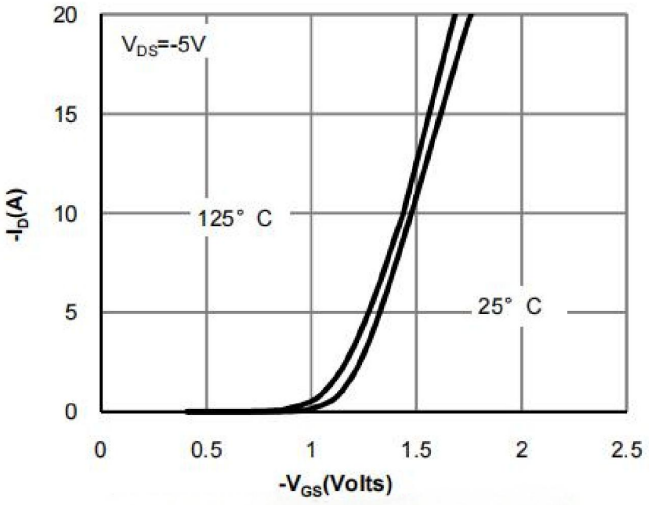


Figure 2.Transfer Characteristics

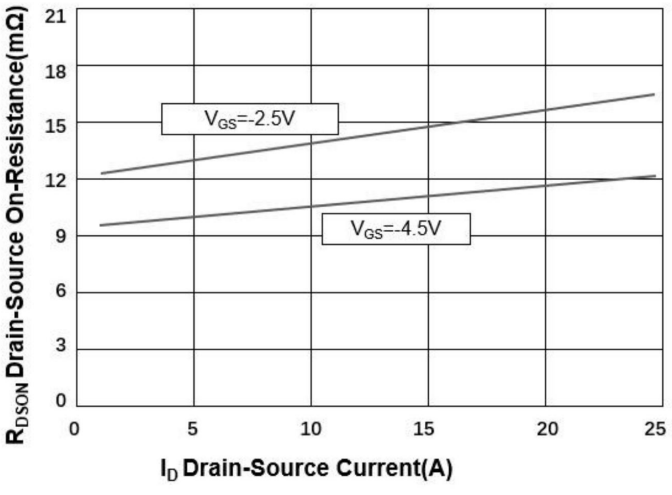


Figure 3. On-Resistance vs. Drain Current and Gate Vlotage

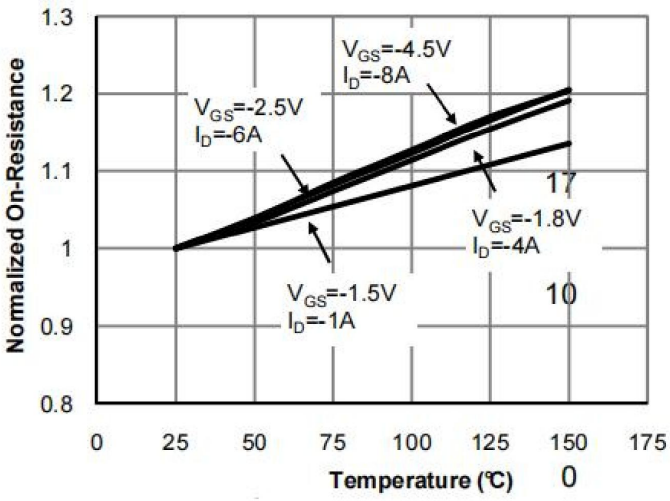


Figure 4. On-Resistance vs. Junction gempetature

Package Outline Dimensions

Device Marking	Device	Package	Reel size	Tape width
M1609 ****	CT130P016ZF	DFN2*2-6L	7inch	8mm