

Descriptions

The CT095N02ZF uses advanced trench technology to provide excellent RDS(ON), low gate charge and operation with low gate voltages. This device is suitable for use as a load switch or in PWM applications.

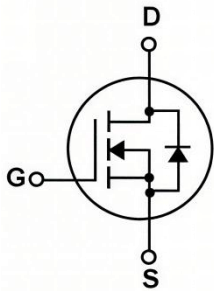
Features

- $V_{DS} = 20V$, $I_D = 18A$
- $R_{DS(ON)} < 9.5\ m\Omega$ @ $V_{GS} = 4.5V$
- $R_{DS(ON)} < 11\ m\Omega$ @ $V_{GS} = 2.5\ V$
- High Power and current handing capability
- Lead free product is acquired
- Surface Mount Package

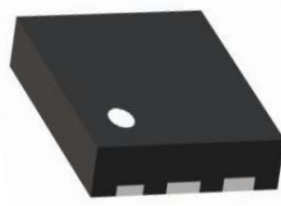
Application

- PWM applications
- Load switch
- Power management

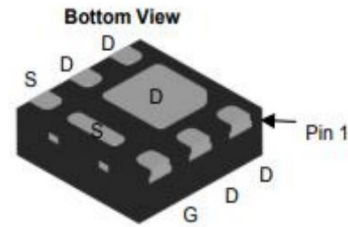
Equivalent Circuit & Pinning



Schematic Diagram



Pin configuration (Top view)



DFN2020-6L

Absolute Maximum Ratings(Ta=25°C)

Characteristics		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Voltage		V_{GS}	±10	V
Continuous Drain Current (1)	Tc=25°C	I_D	18	A
	Tc=70°C		9	A
Pulsed Drain Current (2)		I_{DM}	26	A
Junction and Storage Temperature Range		TJ, Tstg	-55~150	°C

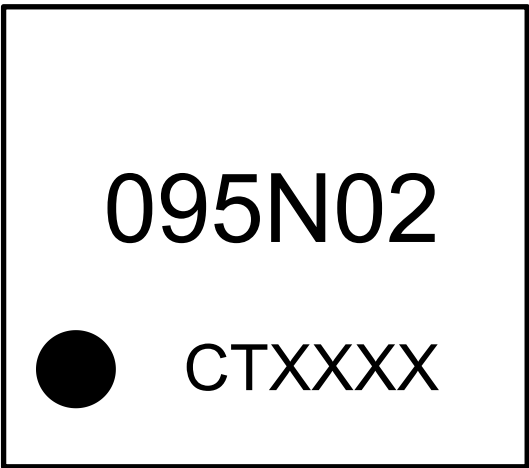
Thermal resistance ratings

Symbol	Characteristics	conditions	TYPE	MAX	Unit
$R_{\theta JC}$	Thermal Resistance,	In Free air	68	75	°C/W
$R_{\theta JA}$	Junction to Ambient ⁽¹⁾	In free air;t≤5S	35	38	

Electrical Characteristics(Ta=25°C)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
STATIC PARAMETERS						
$B_{V_{DS}}$	Drain-Source Breakdown Voltage	$I_D=250\mu A, V_{GS}=0V$	20			V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=20V, V_{GS}=0V$			1	μA
I_{GSS}	Gate-Body leakage current	$V_{DS}=0V, V_{GS}=\pm 10V$			100	nA
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	0.6	1.0	1.4	V
$R_{DS(on)}$	Static Drain-Source On-Resistance	$V_{GS}=4.5V, I_D=6A$		7.5	9.5	m Ω
		$V_{GS}=2.5V, I_D=5A$		9	11	m Ω
g_{FS}	Forward Transconductance	$V_{DS}=5V, I_D=5.8A$		14.4		S
V_{SD}	Diode Forward Voltage	$I_S=1A, V_{GS}=0V$		0.75	1	V
I_S	Maximum Body-Diode Continuous Current				2.5	A
DYNAMIC PARAMETERS						
C_{ISS}	Input Capacitance	$V_{GS}=0V, V_{DS}=10V, F=1MHz$		803		pF
C_{OSS}	Output Capacitance			156		pF
C_{RSS}	Reverse Transfer Capacitance			136		pF
R_g	Gate resistance	$V_{GS}=0V, V_{DS}=0V, F=1MHz$		4.36		Ω
SWITCHING PARAMETERS						
Q_g	Total Gate Charge	$V_{GS}=4.5V, V_{DS}=10V, I_D=6A, R_G=1\Omega$		3.72		nC
Q_{gs}	Gate Source Charge			1.4		nC
Q_{gd}	Gate Drain Charge			10..14		nC
$t_{D(on)}$	Turn-On Delay Time	$V_{GS}=4.5V, V_{DS}=10V, R_{GEN}=25\Omega$		6.8		ns
t_r	Turn-On Rise Time			29.2		ns
$t_{D(off)}$	Turn-Off Delay Time			29		ns
t_f	Turn-Off Fall Time			14.6		ns

Marking Instructions



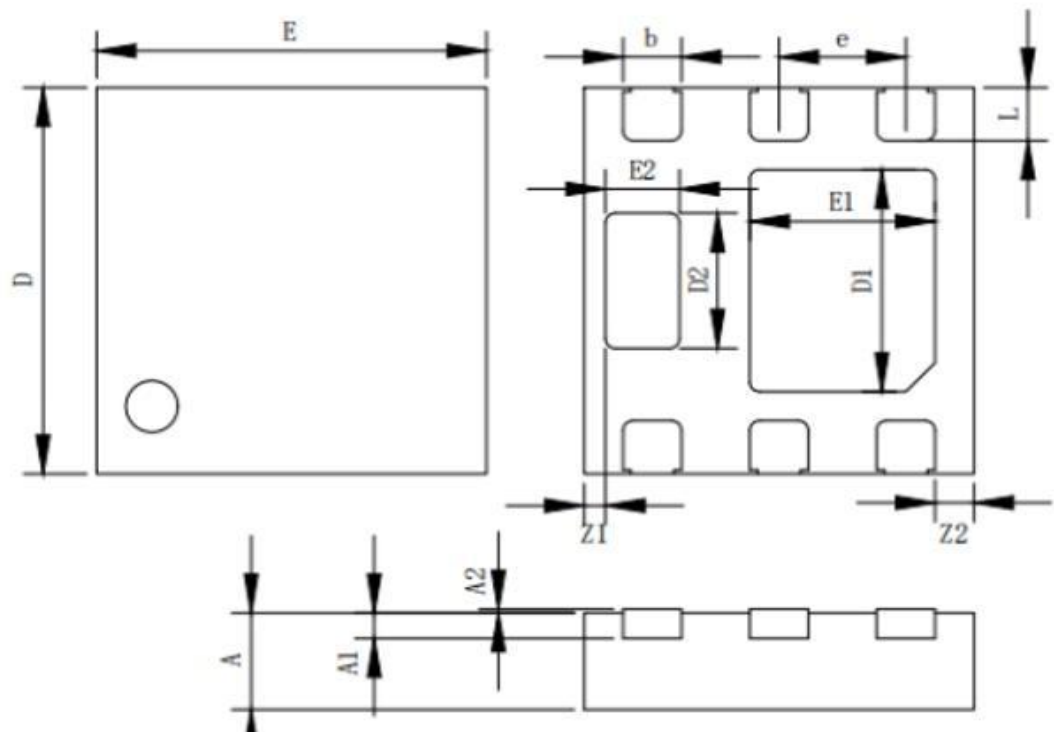
Note:
095N02: Device code.
CTXXXX: Date code

Packaging SPEC

Device Marking	Device	Package	Reel size	Tape width	Quantity
095N02	CT095N02ZF	DFN2020-6L	7inch	8mm	3000

Package Outline Dimensions

DFN2020-6L



Symbol	Millimeters	
	MIN	MAX
A	0.45	0.65
A2	-	0.05
A1	0.203REF	
D	1.90	2.10
E	1.90	2.10
D1	0.95	1.05
E1	0.95	1.05
D2	0.75	0.85
E2	0.25	0.35
b	0.25	0.35
e	0.65BSC	
L	0.20	0.30
Z1	0.15	0.25
Z2	0.15	0.25