● General Description

The CH07N04N combines advanced trench MOSFET technology with a low resistance package to provide extremely low $R_{DS(ON)}$. This device is ideal for load switch and battery protection applications.

● Features

■ Advance high cell density Trench technology

■Low $R_{DS(ON)}$ to minimize conductive loss

■Low Gate Charge for fast switching ■Low Thermal resistance

●Application

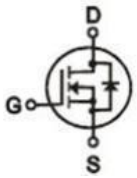
■MB/VGA Vcore

■SMPS 2nd Synchronous Rectifier

■POL application

■BLDC Motor driver

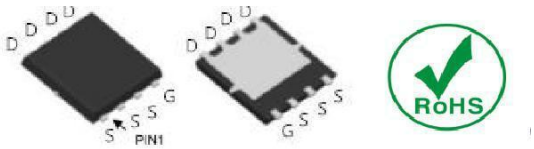
● Product Summary



V_{DS} =40V

$R_{DS(ON)}$ =7mΩ

I_D =40A



DFN3*3

●Ordering Information:

Part NO.	CH07N04N
Marking	CH07N04N
Packing Information	REEL TAPE
Basic ordering unit (pcs)	5000

●Absolute Maximum Ratings（T_C =25℃）

Parameter	**Symbol**	Rating	Unit
Drain-Source Voltage	V_{DS}	40	V
Gate-Source Voltage	V_{GS}	20	V
Continuous Drain Current	$I_{D@}$TC=25℃	40	A
	$I_{D@}$TC=75℃	30	A
	$I_{D@}$TC=100℃	30	A
Pulsed Drain Current	I_{DM}	40	A
Total Power Dissipation(TC=25℃)	P_D@TC=25℃	40	W
Total Power Dissipation(TA=100℃)	P_D@TC=100℃	20	W
Operating Junction Temperature	T_J	-55 to 175	℃
Storage Temperature	T_{STG}	-55 to 175	℃
Single Pulse Avalanche Energy@L=0.1mH	E_{AS}	100	mJ
Avalanche Current@L=0.1mH	I_{AS}	55	A

●Thermal resistance

Parameter	Symbol	Min.	Typ.	Max.	Unit
Thermal resistance, junction - case	R_{thJC}	-	3.72		°C/W
Thermal resistance, junction - ambient	R_{thJA}	-	-	30	°C/W
Soldering temperature, wavesoldering for 10s	T_{sold}	-	-	125	°C

●Electronic Characteristics

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS} =0V,I_D =250uA	40			V
Gate Threshold Voltage	$V_{GS(TH)}$	V_{GS} =V_{DS}, I_D =250uA	1	1.6	2.5	V
Drain-Source Leakage Current	I_{DSS}	V_{DS}=100V, V_{GS} =0V			1.0	uA
Gate- Source Leakage Current	I_{GSS}	V_{GS}=±20V ,V_{DS} =0V			±100	nA
Static Drain-source On Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=20A		6.0	7.0	mΩ
		VGS=4.5V, ID=16A		10	15	mΩ
Forward Transconductance	g_{FS}	V_{DS} =15V, I_D=10A		18		s
Source-drain voltage	V_{SD}	Is=20A			1.20	V

●Electronic Characteristics

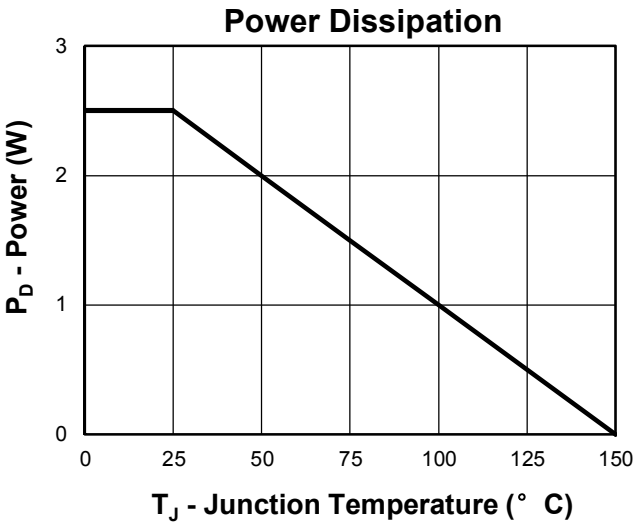
Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Input capacitance	C_{iss}	f = 1MHz	-	590	-	pF
Output capacitance	C_{oss}		-	135	-	
Reverse transfer capacitance	C_{rss}		-	68	-	

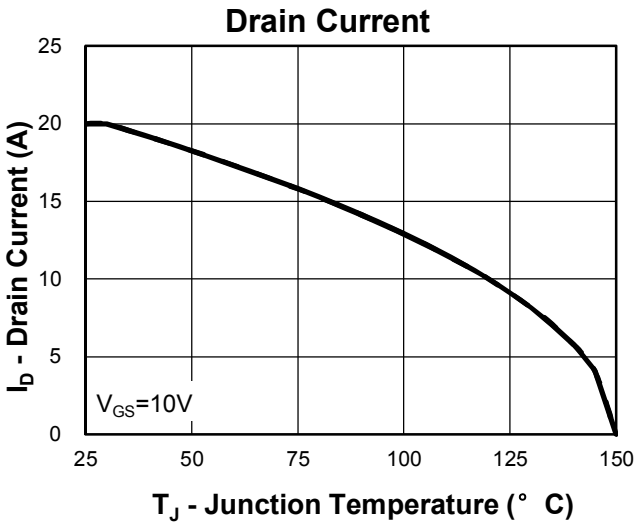
●Gate Charge characteristics(T_a = 25℃)

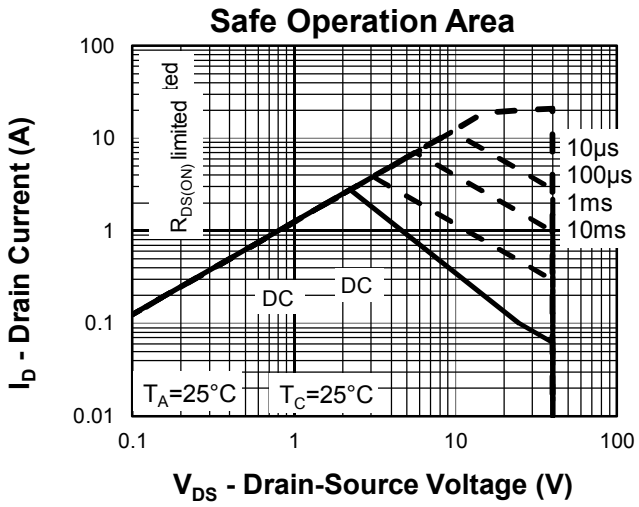
Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Total gate charge	Q_g	V_{DS} =32V	-	68	-	nC
Gate - Source charge	Q_{gs}	I_D = 20A	-	21	-	
Gate - Drain charge	Q_{gd}	V_{GS} = 10V	-	16	-	

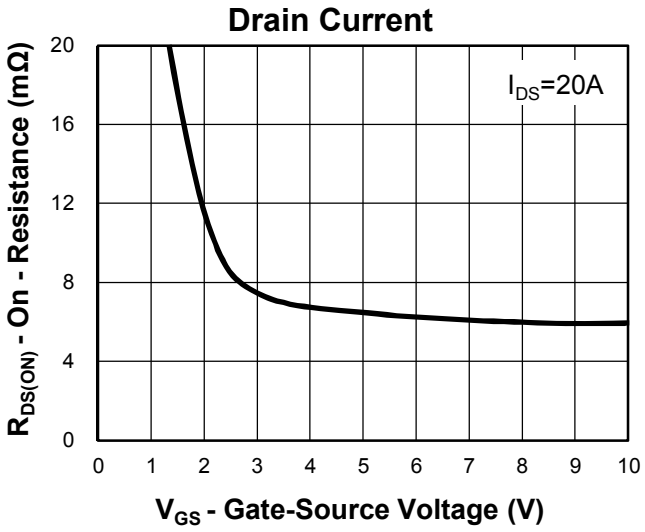
Note: ① Pulse Test : Pulse width ≤ 300μs, Duty cycle ≤ 2% ;

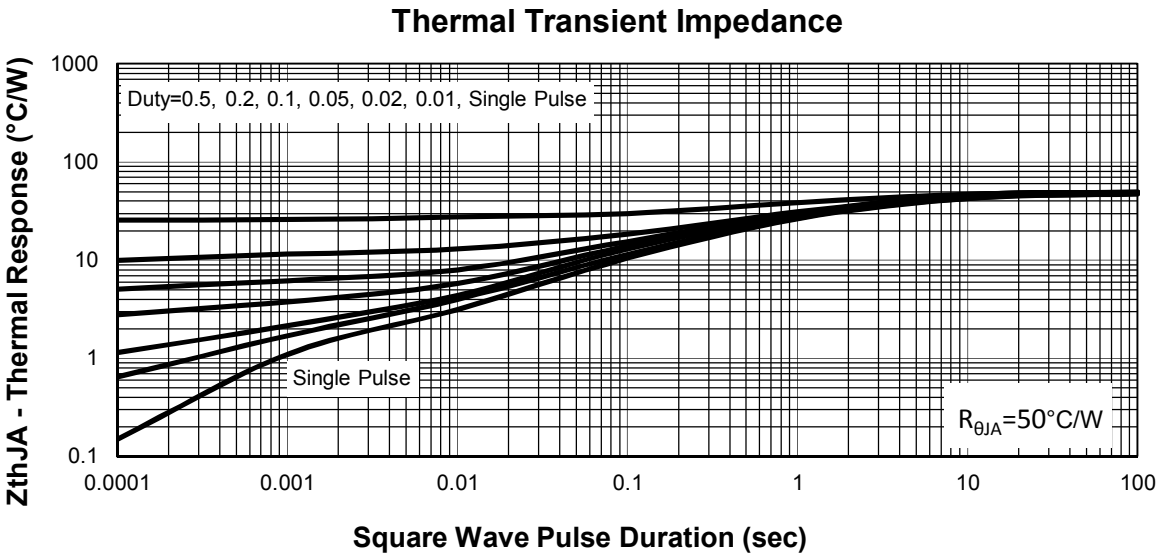
Typical Characteristics











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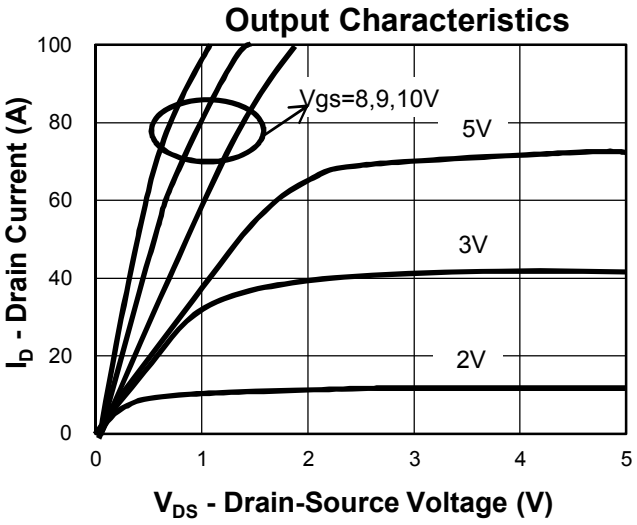
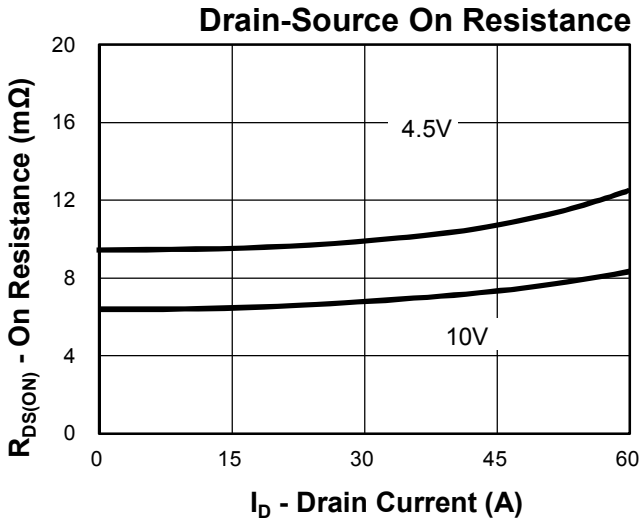
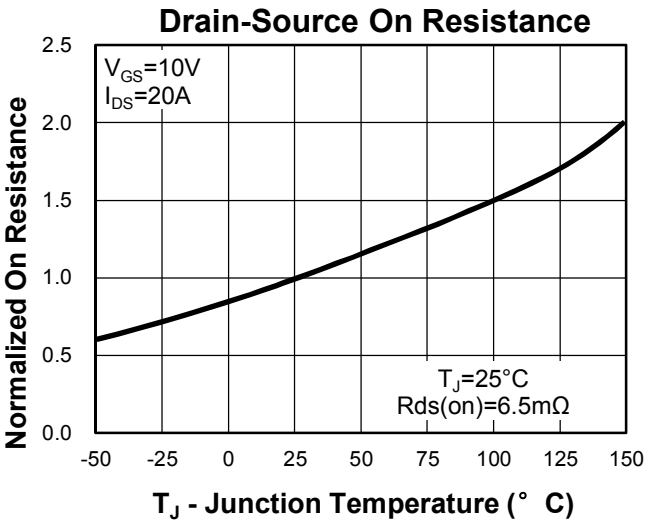
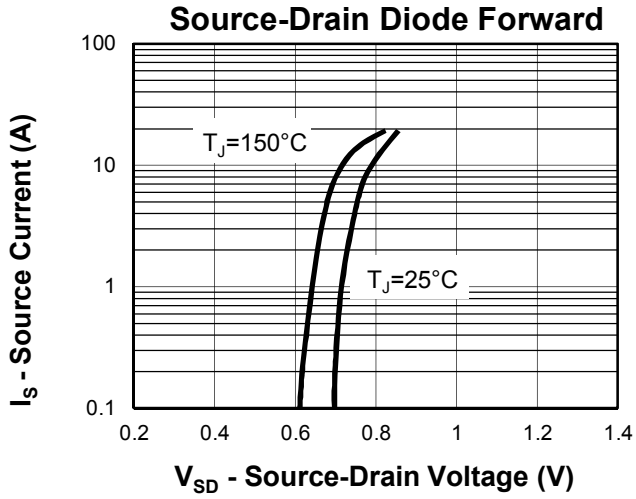
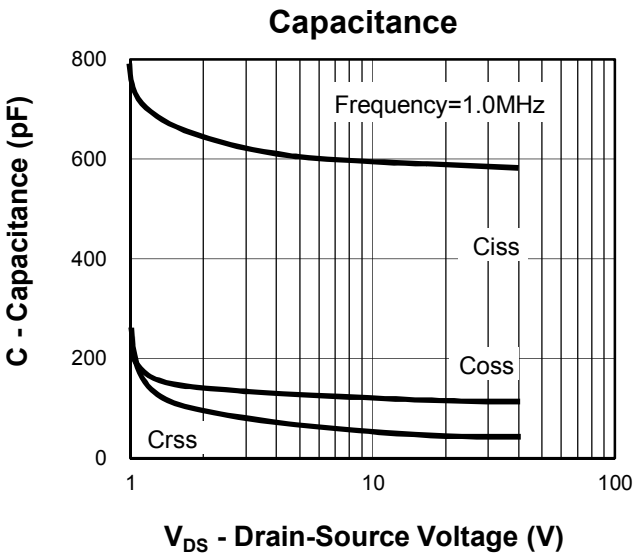
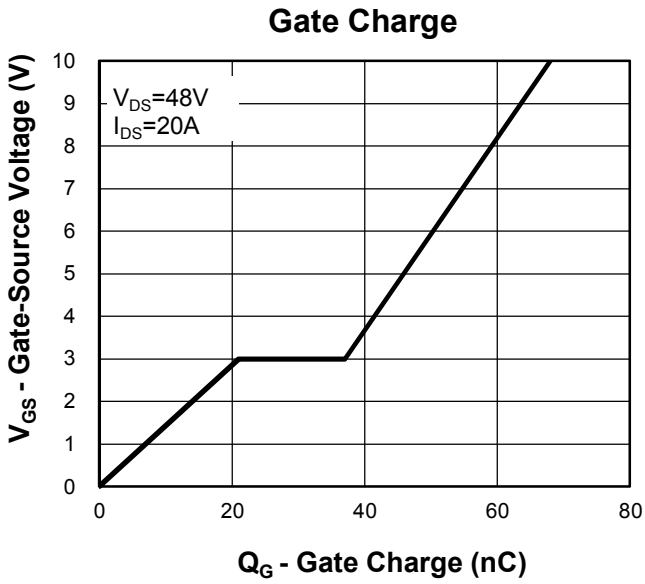




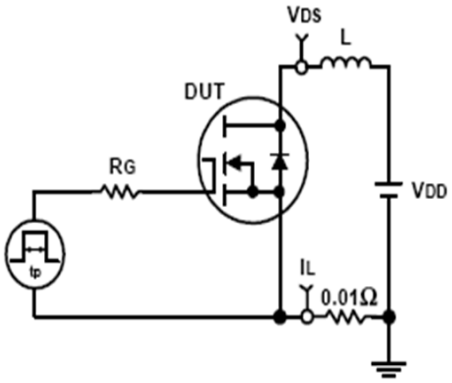


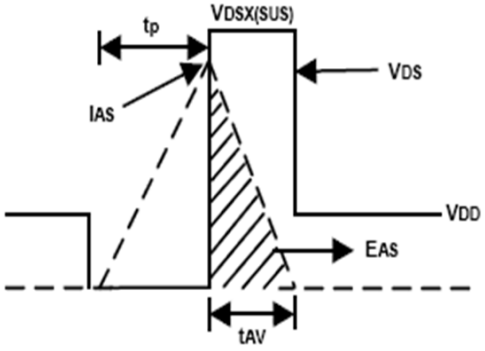




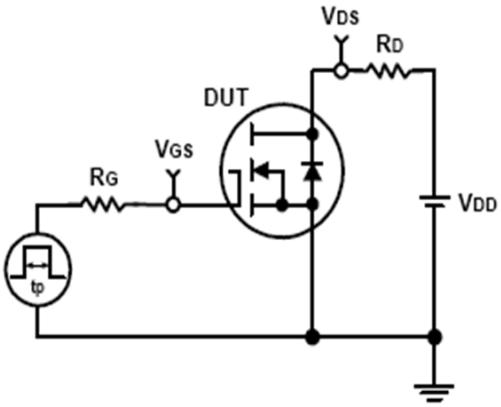


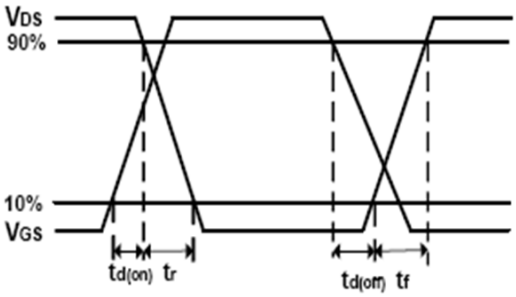
Avalanche Test Circuit and Waveforms



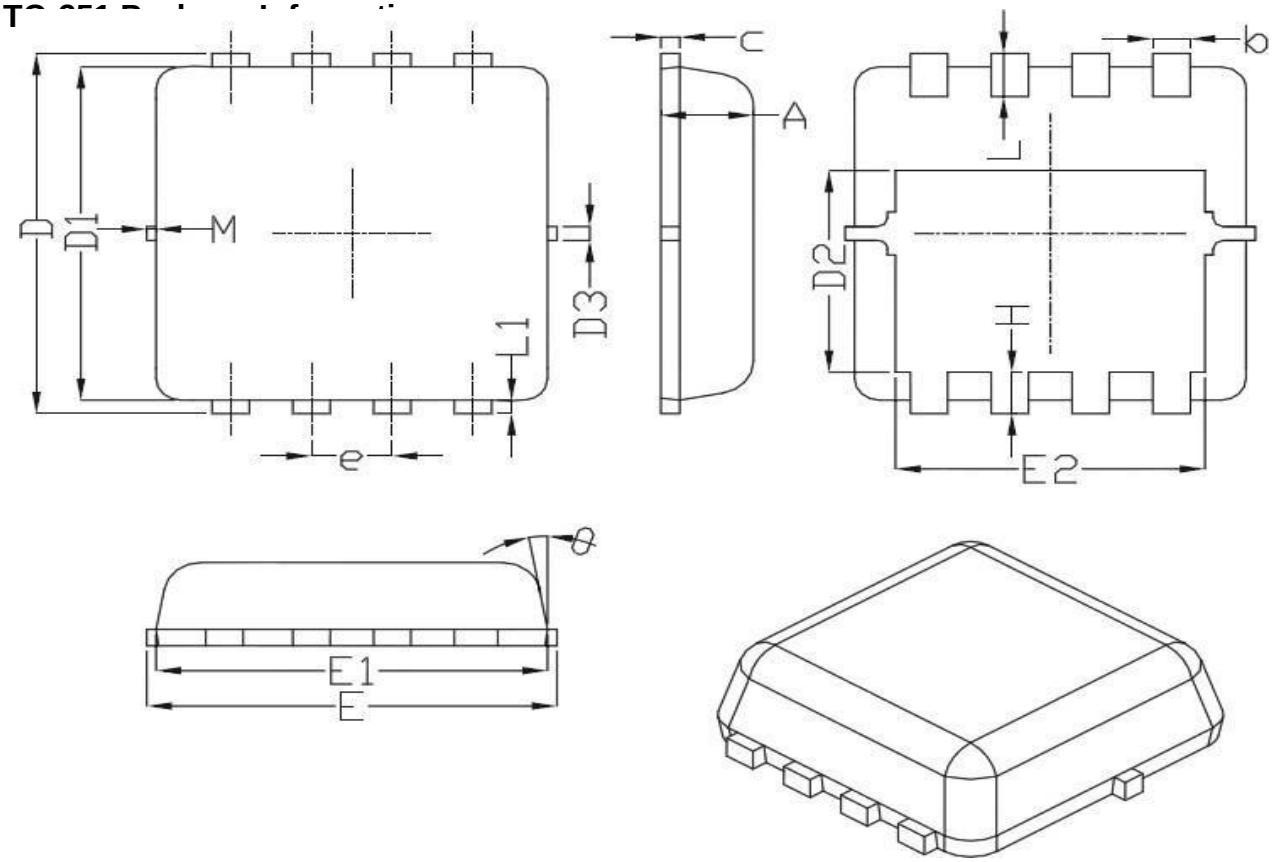


Switching Time Test Circuit and Waveforms





TO-251 Package Information



DIMENSIONS (unit : mm)

Symbol	Min	Typ	Max	Symbol	Min	Typ	Max
A	0.70	0.75	0.80	**b**	0.25	0.30	0.35
C	0.10	0.15	0.25	**D**	3.25	3.35	3.45
D1	3.00	3.10	3.20	**D2**	1.78	1.88	1.98
D3	--	0.13	--	**E**	3.20	3.30	3.40
E1	3.00	3.15	3.20	**E2**	2.39	2.49	2.59
e	0.65BSC			**H**	0.30	0.39	0.50
L	0.30	0.40	0.50	**L1**	--	0.13	--
θ	--	10°	12°	**M**	*	*	0.15
*Not specified							