40V N-Channel Enhancement Mode MOSFET

1.Product Information

1.1 Features

- ◇ Advanced SGT cell design
- ◇ Surface-mounted package
- ◇ Low Thermal Resistance

1.2 Applications

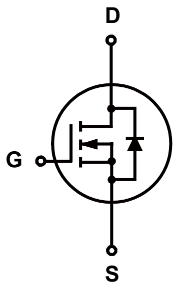
- ◇ Motor drivers
- ◇ DC - DC Converter

1.3 Quick reference

- ◇ BV ≧ 40 V
- ◇ P_{tot} ≦ 230 W
- ◇ I_D ≦ 300 A
- ◇ $R_{DS(ON)}$ ≦ 0.85 mΩ @ V_{GS} = 10 V
- ◇ $R_{DS(ON)}$ ≦ 2.05 mΩ @ V_{GS} = 6 V

2.Pin Description

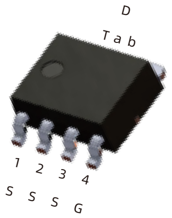
Symbol



Simplified Outline

Top View

LFPAK



3.Marking Information

Product Name	Marking
LN007N040LF	**LN007N040LF** **CYWWZZ** **XXXXXX**

4.Limiting Values

Symbol	Parameter	Conditions	Min	Max	Unit
V_{DS}	Drain-Source Voltage	T_C = 25 ℃	-	40	V
V_{GS}	Gate-Source Voltage	T_C = 25 ℃	-	± 20	V
I_D*,***	Drain Current	T_C = 25 ℃, V_{GS} = 10 V	-	300	A
		T_C = 100 ℃, V_{GS} = 10 V	-	280	A
I_{DM}*,**	Pulsed Source Current	T_C = 25 ℃, V_{GS} = 10 V	-	1200	A
P_{tot}*	Total power dissipation	T_C = 25 ℃	-	230	W
T_{stg}	Storage Temperature		- 55	175	℃
T_J	Junction Temperature		-	175	℃
I_S	Diode Forward Current	T_C = 25 ℃	-	300	A
E_{AS}*	Single Pulsed Avalanche Energy	V_{DD}= 40 V , L= 1 mH	-	800	mJ
$R_{\theta JA}$*	Thermal Resistance- Junction to Ambient		-	60	℃/W
$R_{\theta JC}$*	Thermal Resistance- Junction to Case		-	0.65	

Notes：
* Surface Mounted on 1 in^2 pad area, t ≤10 sec
** Pulse width ≤ 300 μs, duty cycle ≤ 2 %
*** Limited by bonding wire

5.Ordering Code

Product Name	Package	Reel Size	Tape width	Quantity	Note
LN007N040LF	**LFPAK5*6**	**Ø330mm**	**12mm**	**5000**	

Note: COMTECH defines “ Green ” as lead-free (RoHS compliant) and halogen free (Br or Cl does not exceed900 ppm by weight in homogeneous material and total of Br and Cl does not exceed 1500 ppm by weight;Follow IEC 61249-2-21 and IPC / JEDEC J-STD-020C)

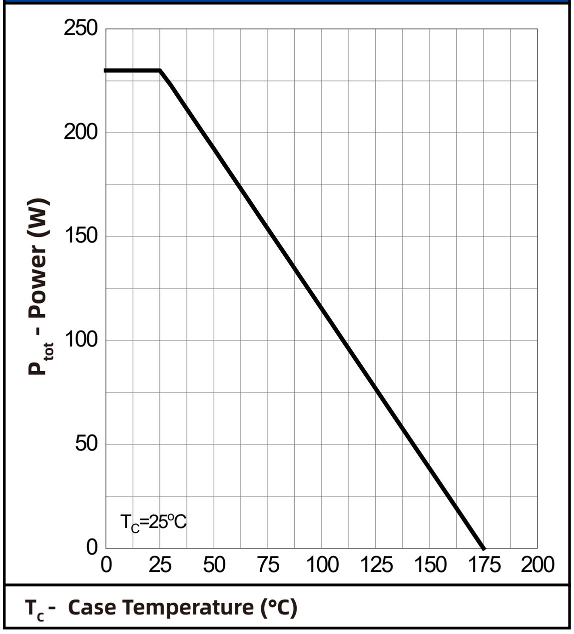
6. Electrical Characteristics (T_A=25 ° Unless Otherwise Noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS} = 0 V, I_{DS} = 250 µA	40	-	-	V
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_{DS} = 250 µA	2	-	4	V
I_{DSS}	Drain Leakage Current	V_{DS} = 32V, V_{GS} = 0 V	-	-	1	µA
I_{GSS}	Gate Leakage Current	V_{GS} = ±20 V, V_{DS} = 0 V	-	-	±100	nA
$R_{DS(ON)}$[a]	On-State Resistance	V_{GS} = 10 V, I_{DS} = 30 A	-	0.71	0.85	mΩ
		V_{GS} = 6 V, I_{DS} = 20 A	-	1.65	2.05	
Diode Characteristics						
V_{SD}[a]	Diode Forward Voltage	I_{SD} = 30 A, V_{GS} = 0 V	-	-	1.3	V
t_{rr}	Reverse Recovery Time	I_{DS} = 30 A, V_{GS} = 0 V dI_{SD}/dt = 100 A/µs	-	48	-	nS
Q_{rr}	Reverse Recovery Charge		-	41	-	nC
Dynamic Characteristics[b]						
C_{iSS}	Input Capacitance	V_{GS} = 0 V, V_{DS} = 20 V Frequency = 1 MHz	-	4651	-	pF
C_{OSS}	Output Capacitance		-	2224	-	
C_{rSS}	Reverse Transfer Capacitance		-	165	-	
t_d(on)	Turn-on Delay Time	V_{DS} = 20 V, V_{GEN} = 10 V, R_G = 3.9 Ω, R_L = 0.66 Ω, I_{DS} = 30 A	-	15	-	nS
t_r	Turn-on Rise Time		-	60	-	
t_d(off)	Turn-off Delay Time		-	49	-	
t_f	Turn-off Fall Time		-	42	-	
Gate Charge Characteristics[b]						
Q_g	Total Gate Charge	V_{DS} = 20 V, V_{GS} = 10 V, I_{DS} = 30 A	-	79	-	nC
Q_{gs}	Gate-Source Charge		-	25	-	
Q_{gd}	Gate-Drain Charge		-	18	-	

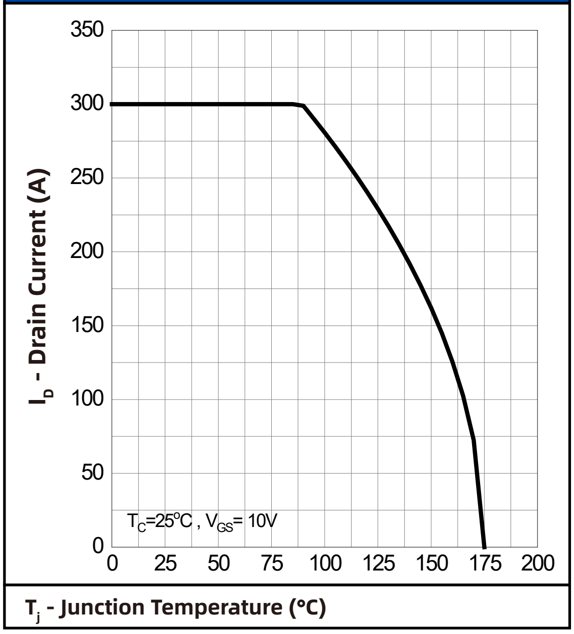
Notes :
a : Pulse test ; pulse width ≤ 300 µs, duty cycle ≤ 2%
b : Guaranteed by design, not subject to production testing

7. Typical Characteristics

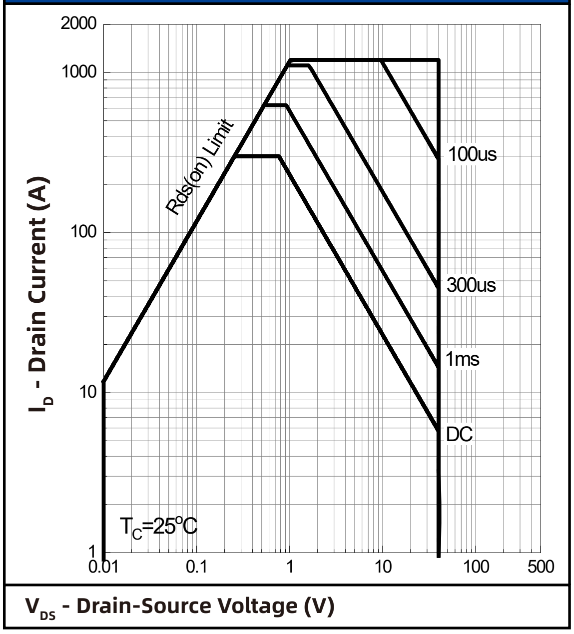
Power Capability



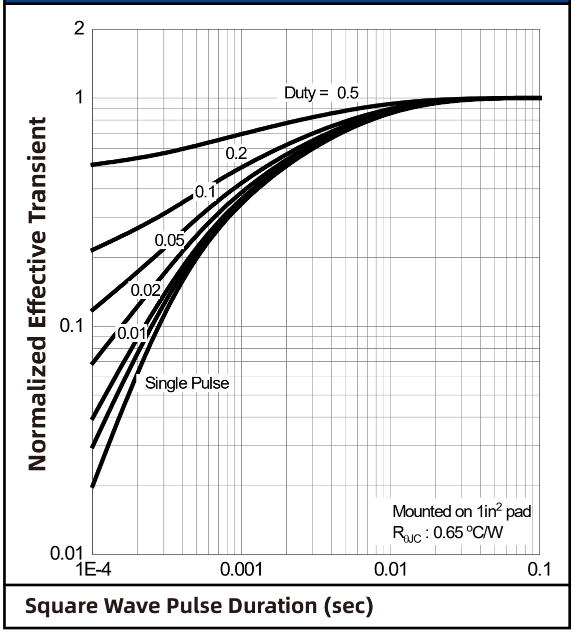
Current Capability



Safe Operating Area

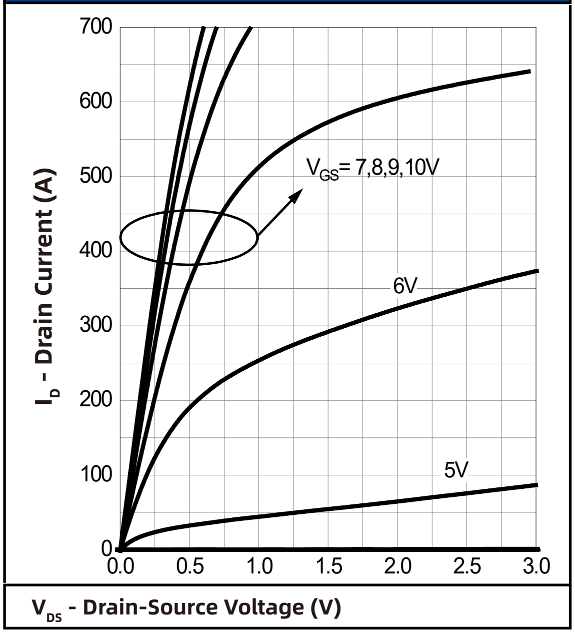


Transient Thermal Impedance

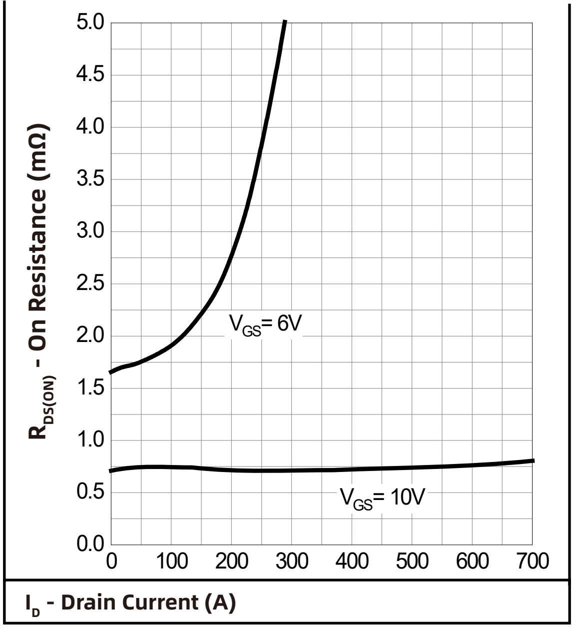


7. Typical Characteristics (cont.)

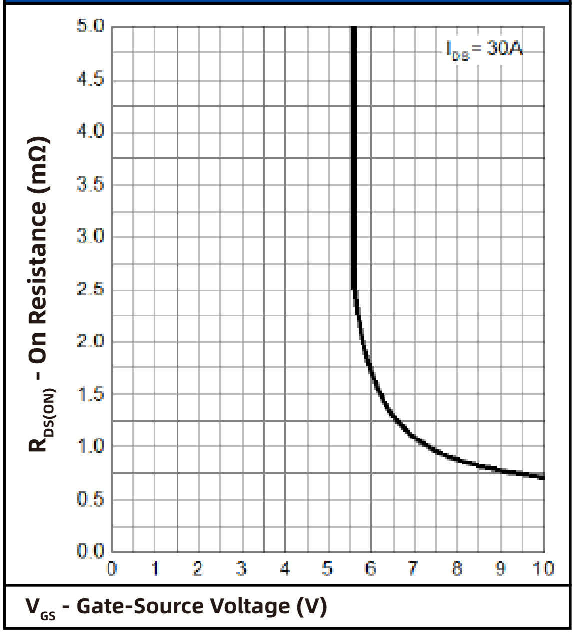
Output Characteristics



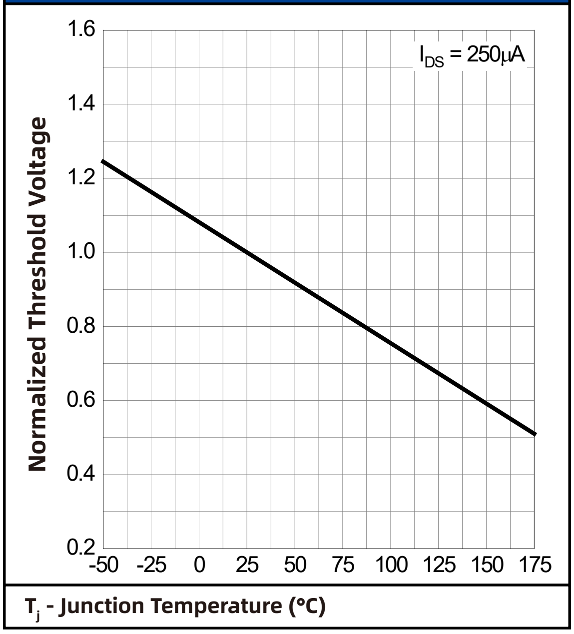
On Resistance



Transfer Characteristics

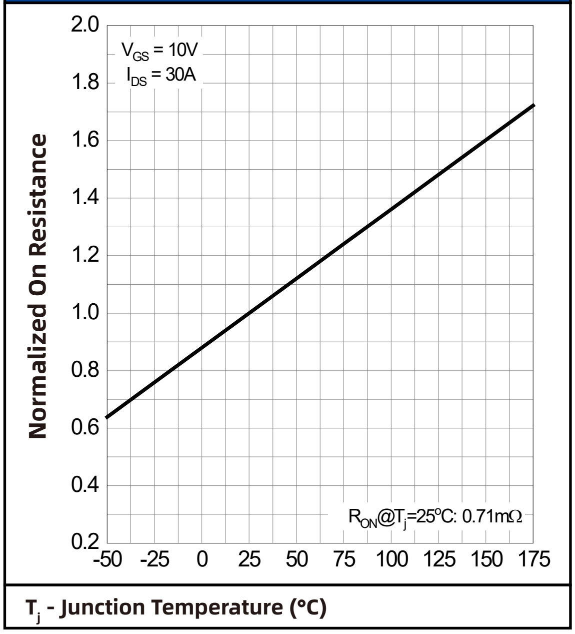


Normalized Threshold Voltage

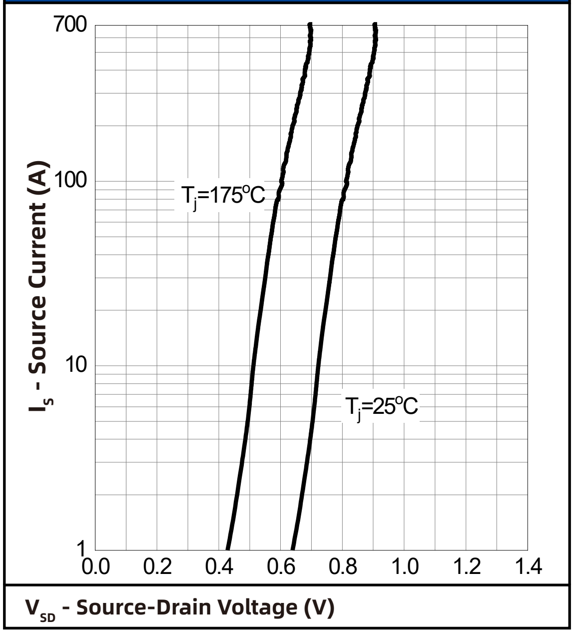


7. Typical Characteristics (cont.)

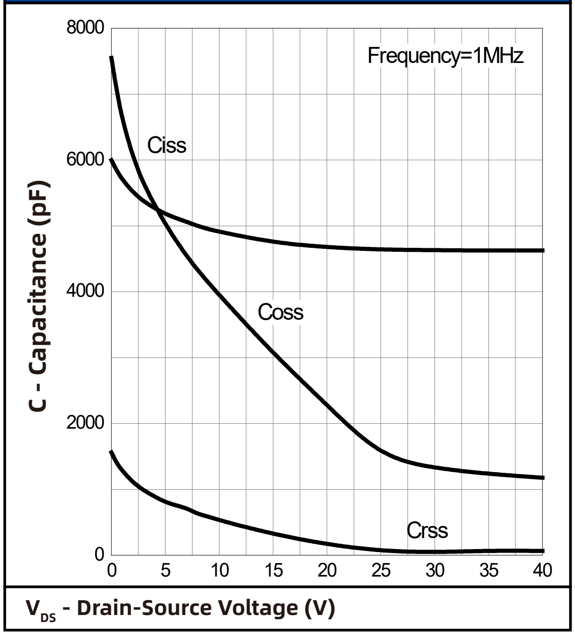
Normalized On Resistance



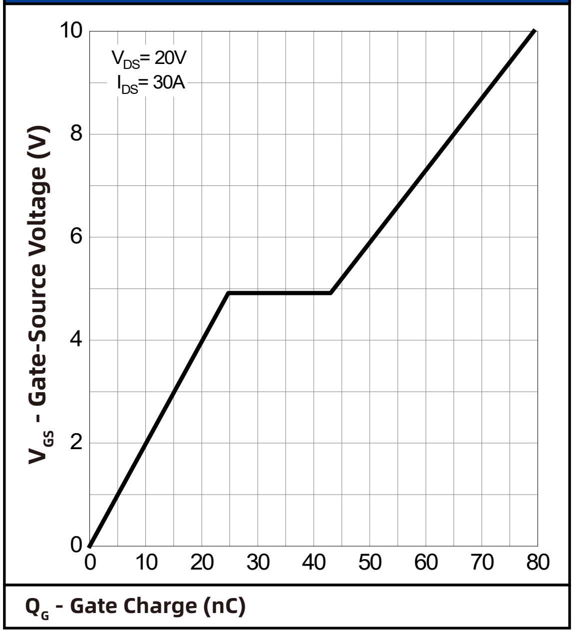
Diode Forward Current



Capacitance

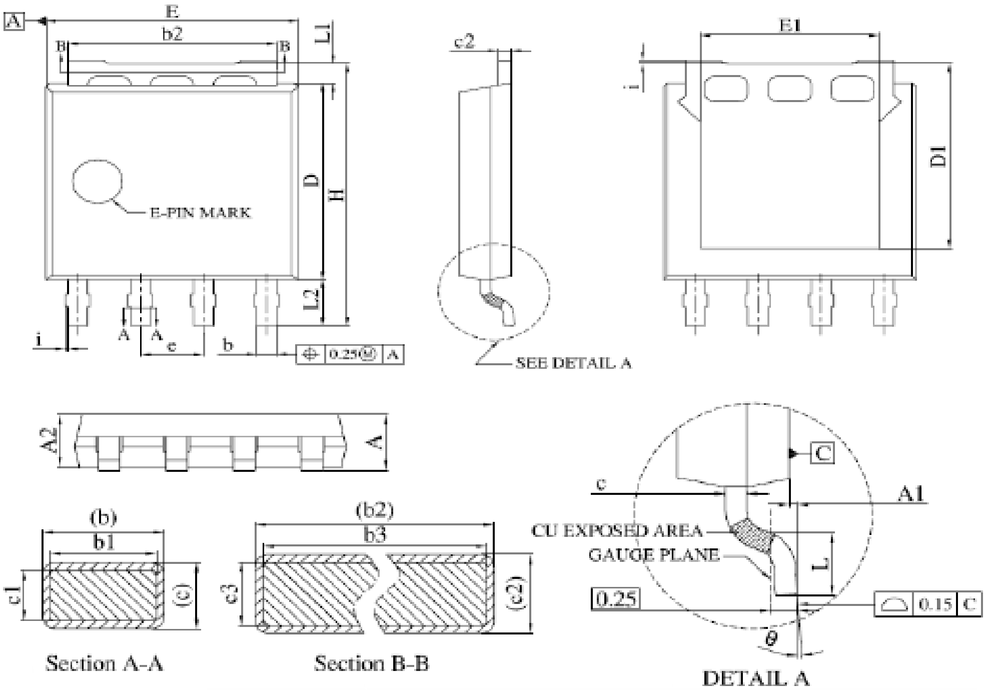


Gate Charge



8. Package Dimensions

LFPAK5*6 Package



Symbol	Dimensions In Millimeters	
	Min.	Max.
A	1.00	1.30
A1	0.00	0.15
A2	0.98	1.12
b	0.35	0.50
b1	0.32	0.46
b2	4.02	4.41
b3	4.00	4.37
c	0.19	0.25
c1	0.17	0.23
c2	0.24	0.30
c3	0.22	0.28
D	4.45	4.70
D1	-	4.45
E	4.95	5.30
E1	3.50	3.70
e	1.27BSC	
H	5.95	6.25
i	-	0.25
L	0.40	0.85
L1	0.27	0.57
L2	0.80	1.30
θ	0°	8°

镭诺-丝印示图及说明

文件编号：LNGC2507S001　V/0

丝印示图及说明

第一行：产品名称

第二行：产品批号

第三行：LOGO+CYWW02

C 固定

Y 为年（4 为 24 年）

WW 为实际投产周（12 为第 12 周）

XX 固定 02

镭诺电子（宁波）有限公司

2025-07-10