

40V N-Channel Enhancement Mode MOSFET

1.Product Information

1.1 Features

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

1.2 Applications

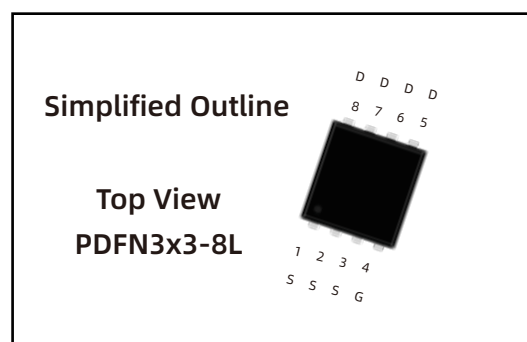
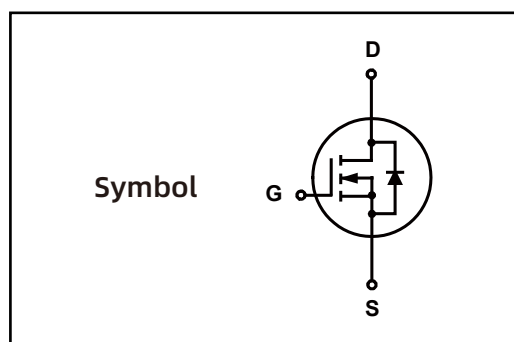
- ◇ Motor drivers
- ◇ DC - DC Converter

1.3 Quick reference

- ◇ $BV \geq 40\text{ V}$
- ◇ $P_{\text{tot}} \leq 50\text{ W}$
- ◇ $I_D \leq 118\text{ A}$

- ◇ $R_{\text{DS(ON)}} \leq 1.7\text{ m}\Omega @ V_{\text{GS}} = 10\text{ V}$
- ◇ $R_{\text{DS(ON)}} \leq 2.9\text{ m}\Omega @ V_{\text{GS}} = 4.5\text{ V}$

2.Pin Description



3.Marking Information

Product Name	Marking
LN015N040Q	LN015N040Q CYWWZZ XXXXXX

4.Limiting Values

Symbol	Parameter	Conditions	Min	Max	Unit
V_{DS}	Drain-Source Voltage	$T_C = 25\text{ }^{\circ}\text{C}$	-	40	V
V_{GS}	Gate-Source Voltage	$T_C = 25\text{ }^{\circ}\text{C}$	-	± 20	V
I_D^*	Drain Current (DC)	$T_C = 25\text{ }^{\circ}\text{C}, V_{GS} = 10\text{ V}$	-	118	A
$I_{DM}^{*,**}$	Drain Current (Pulsed)	$T_C = 25\text{ }^{\circ}\text{C}, V_{GS} = 10\text{ V}$	-	420	A
P_{tot}^*	Total Power Dissipation	$T_C = 25\text{ }^{\circ}\text{C}$	-	50	W
T_{stg}	Storage Temperature	.	-55	175	$^{\circ}\text{C}$
T_J	Junction Temperature		-	175	$^{\circ}\text{C}$
I_S	Diode Forward Current	$T_C = 25\text{ }^{\circ}\text{C}$	-	118	A
$R_{\theta JA}^*$	Thermal Resistance- junction to Ambient		-	63	$^{\circ}\text{C}/\text{W}$
$R_{\theta JC}^*$	Thermal Resistance- junction to Case		-	3	

Notes :

* Surface Mounted on 1 in² pad area, t ≤ 10 sec

** Pulse width ≤ 10 μs, duty cycle ≤ 2 %

*** limited by bonding wire

5.Ordering Code

Product Name	Package	Reel Size	Tape width	Quantity	Note
LN015N040Q	PDFN3.3*3.3			5000	

Note: COMTECH defines " Green " as lead-free (RoHS compliant) and halogen free (Br or Cl does not exceed 900 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 (TA=25 ° Unless Otherwise Noted)

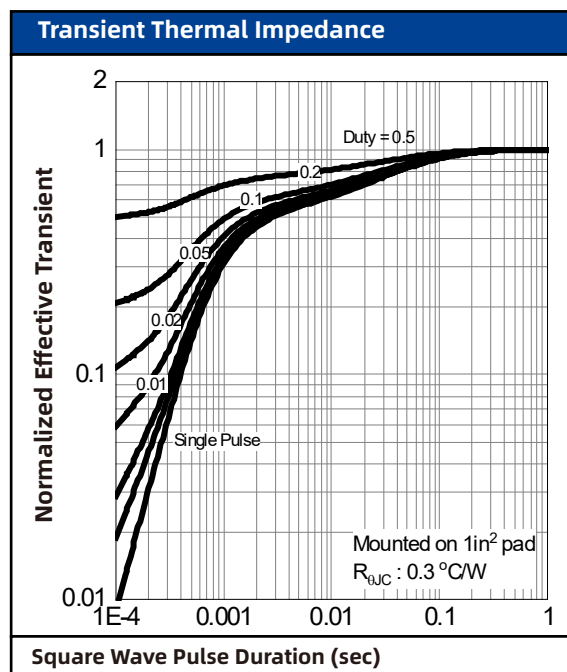
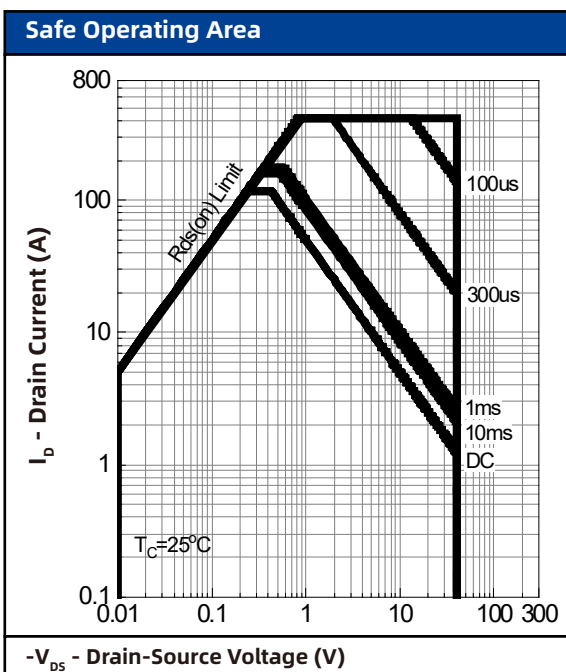
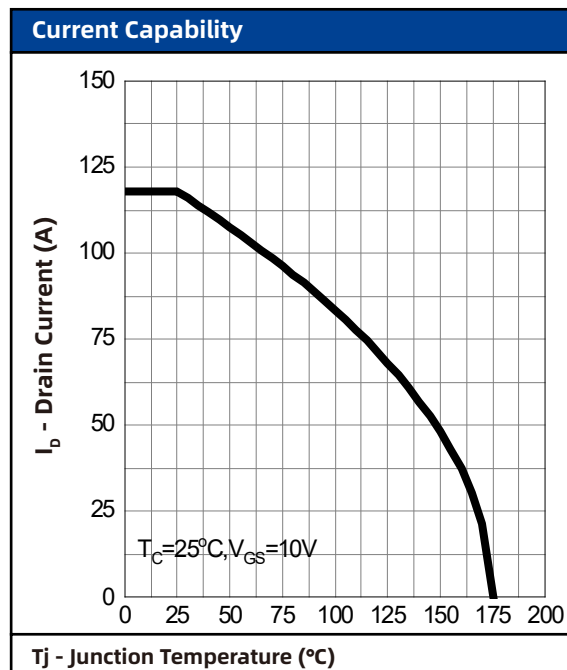
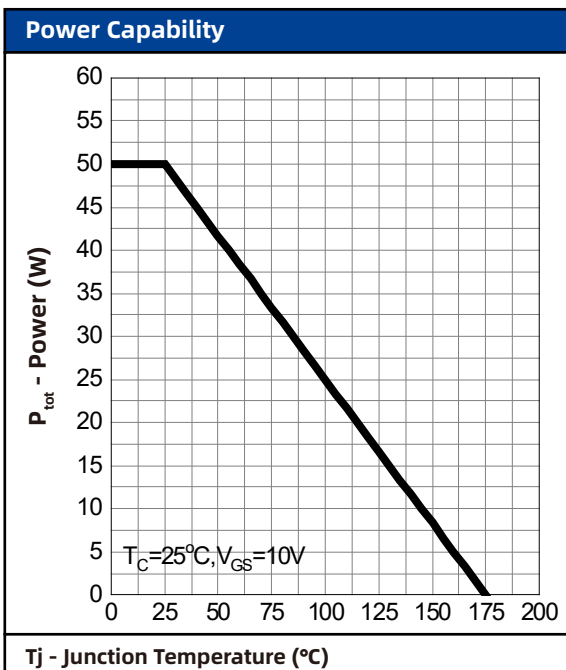
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} = 0 V, I _{DS} = 250 μA	40	-	-	V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _{DS} = 250 μA	1.0	-	2.0	V
I _{DSS}	Drain Leakage Current	V _{DS} = 32V, V _{GS} = 0 V	-	-	1	μA
I _{GSS}	Gate Leakage Current	V _{DS} = 0 V, V _{GS} = ±20 V	-	-	± 100	nA
R _{DS(ON)} ^a	On-State Resistance	V _{GS} = 10 V, I _{DS} = 20 A	-	1.45	1.7	mΩ
		V _{GS} = 4.5 V, I _{DS} = 10 A	-	2.45	2.9	
Diode Characteristics						
V _{SD} ^a	Diode Forward Voltage	I _{SD} = 20 A, V _{GS} = 0 V	-	-	1.3	V
t _{rr}	Reverse Recovery Time	I _{SD} = 20 A	-	42	-	nS
Q _{rr}	Reverse Recovery Charge		dl _{SD} /dt = 100 A/μs	-	26	-
Dynamic Characteristics ^b						
C _{iSS}	Input Capacitance	V _{GS} = 0 V, V _{DS} = 20 V Frequency = 1 MHz	-	2312	-	pF
C _{OSS}	Output Capacitance		-	1053	-	
C _{rSS}	Reverse Transfer Capacitance		-	97	-	
t _{d(on)}	Turn-on Delay Time	V _{DS} = 20 V, V _{GEN} = 10 V, R _G = 4.5 Ω, R _L = 1 Ω, I _{DS} = 20 A	-	8.9	-	nS
t _r	Turn-on Rise Time		-	46	-	
t _{d(off)}	Turn-off Delay Time		-	52	-	
t _f	Turn-off Fall Time		-	39	-	
Gate Charge Characteristics ^b						
Q _g	Total Gate Charge	V _{DS} = 10 V, V _{GS} = 20 V, I _{DS} = 20 A	-	49	-	nC
Q _{gs}	Gate-Source Charge		-	8.4	-	
Q _{gd}	Gate-Drain Charge		-	10	-	

Notes :

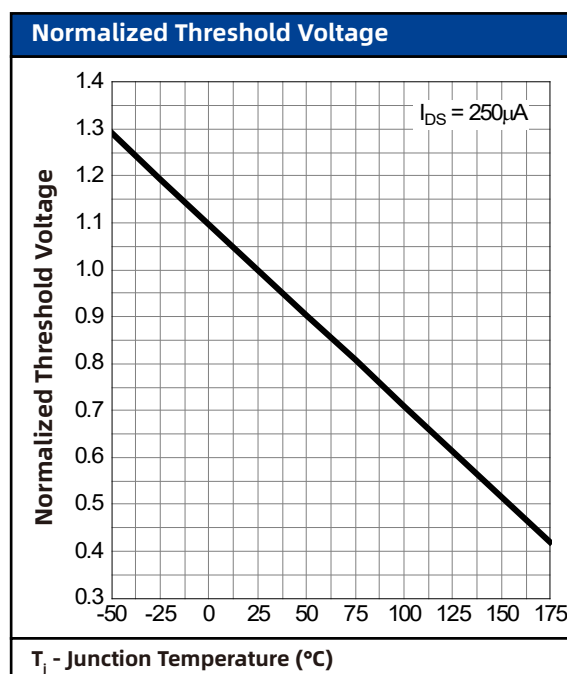
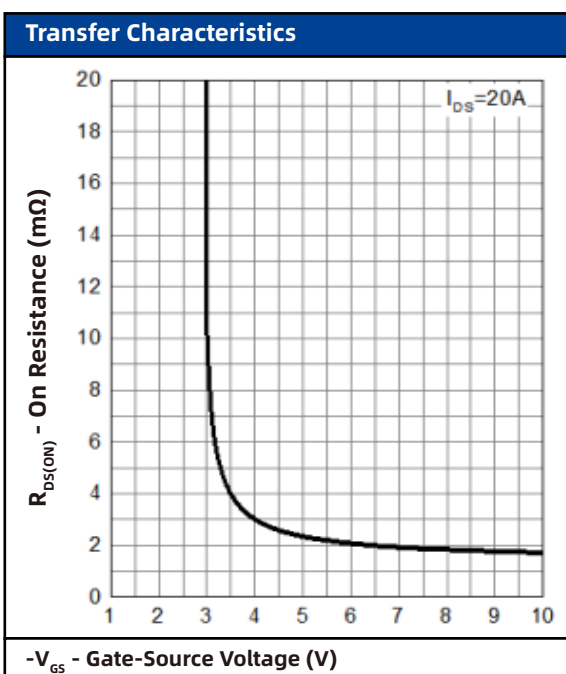
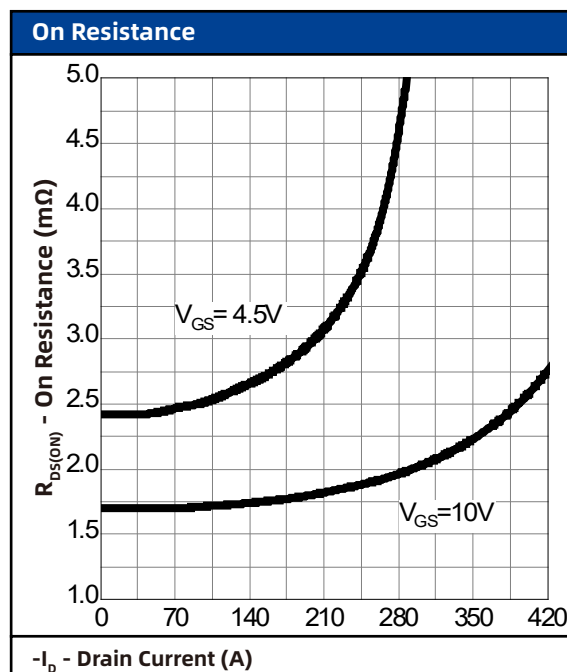
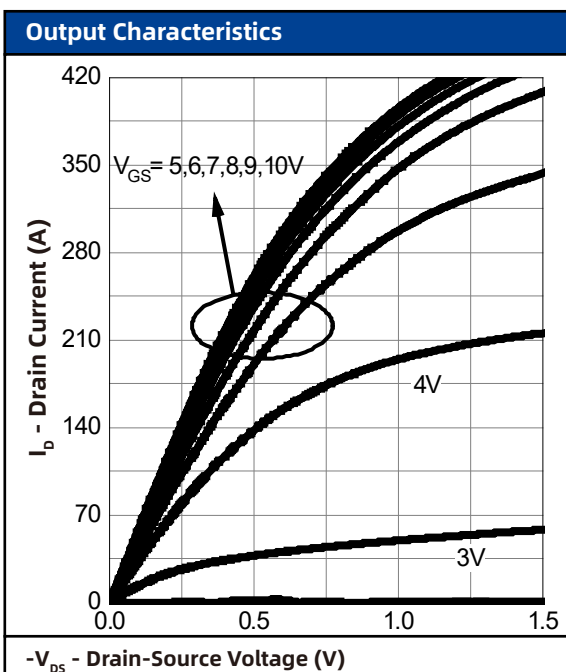
a : Pulse test ; pulse width $\leq 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$

b : Guaranteed by design, not subject to production testing

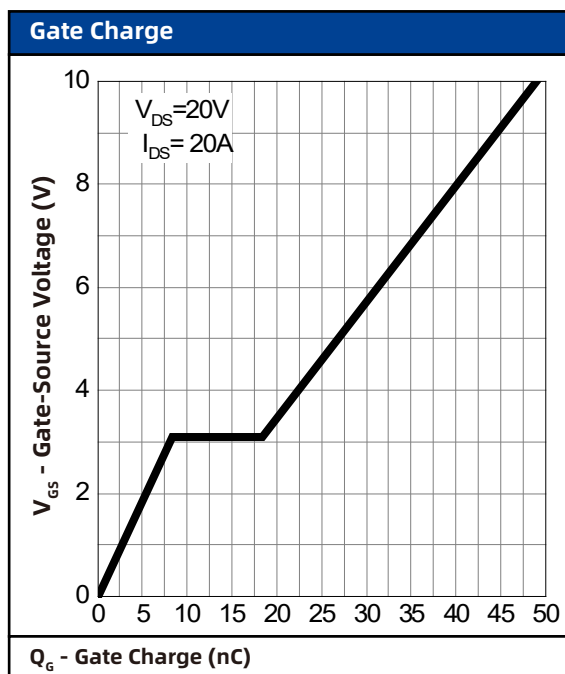
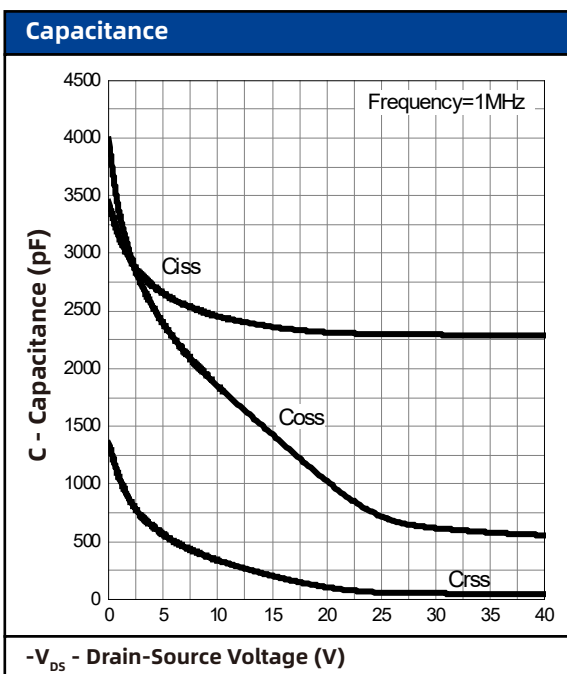
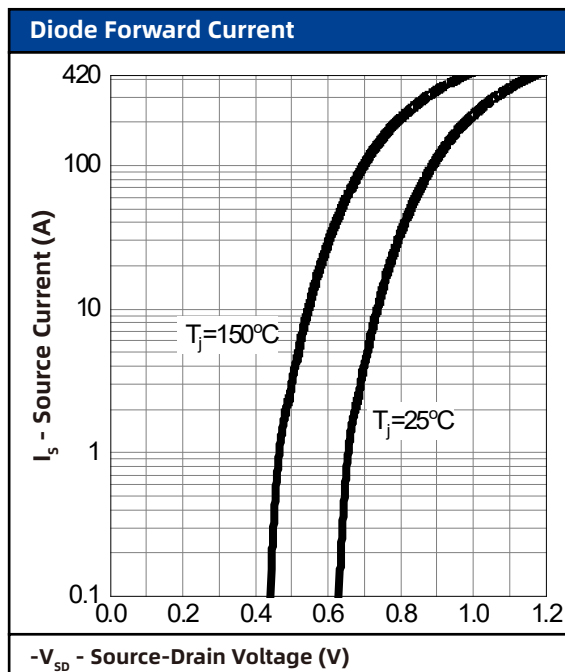
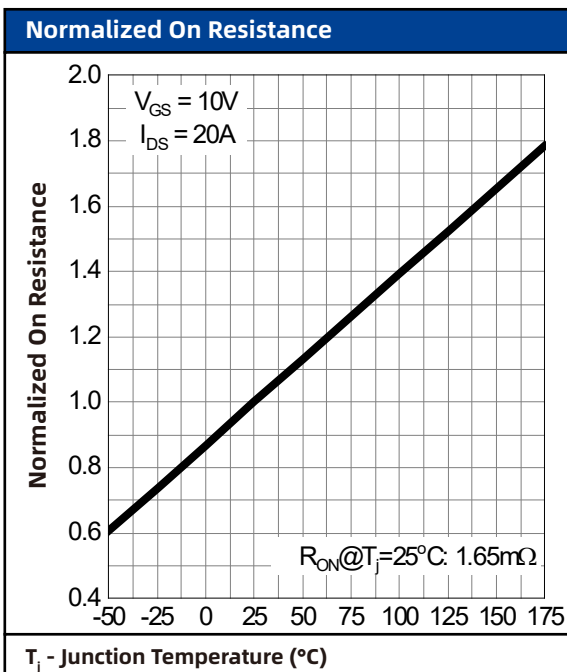
7. Typical Characteristics



7. Typical Characteristics (cont.)

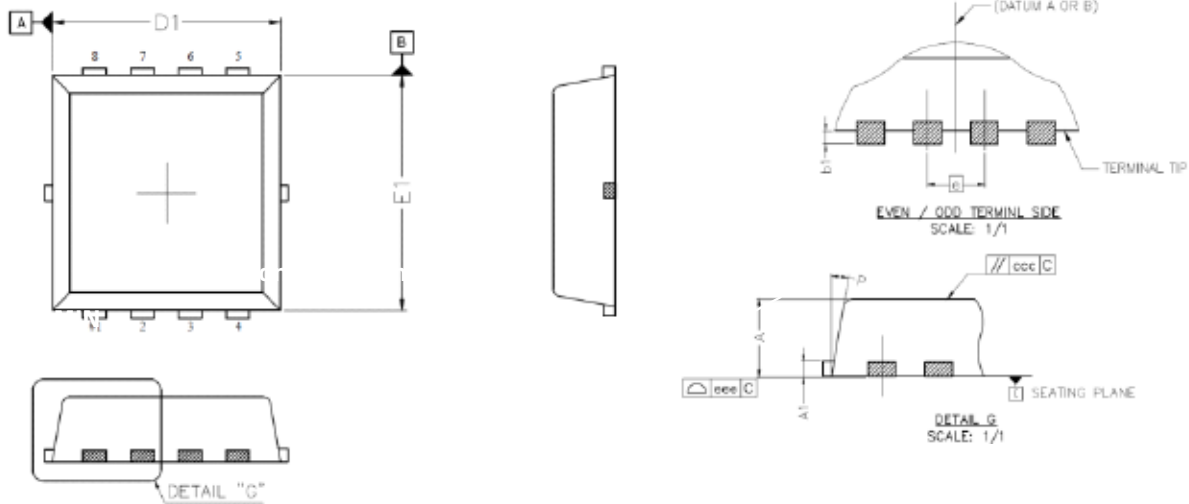


7. Typical Characteristics (cont.)



8. Package Dimensions

PDFN3.3*3.3 Package



Symbol	Dimensions In Millimeters	
	MIN.	MAX.
A	0.80	0.90
A1	0.12	0.22
b	0.27	0.37
b1	0.05	0.15
D	3.00	3.60
D1	3.00	3.20
D2	2.29	2.69
E	3.00	3.60
E1	3.00	3.20
E2	2.00	2.20
e	0.60	0.70
j	0.15	0.35
k	0.60	0.80
n	0.15	0.35
M	0.20	
P	9°	11°
z	0.58	
ccc	0.10	
ddd	0.05	
eee	0.05	