LN016N085C

85V N-Channel Enhancement Mode MOSFET

1.Product Information

1.1 Features

- ◇ Surface-mounted package
- ◇ Advanced SGT cell design

1.2 Applications

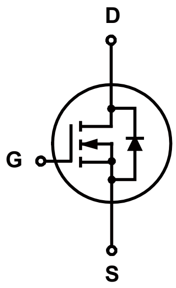
- ◇ Power Tool appliances
- ◇ High power inverter system
- ◇ BMS appliances

1.3 Quick reference

- ◇ $BV \geqq 85\ V$
- ◇ $P_{tot} \leqq 417\ W$
- ◇ $I_D \leqq 481A$
- ◇ $R_{DS(ON)} \leqq 1.8m\Omega$ @ $V_{GS} = 10\ V$

2.Pin Description

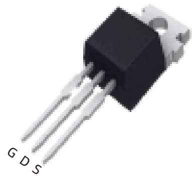
Symbol



Simplified Outline

Top View

TO-220C-3L



3.Marking Information

Product Name	Marking
LN016N085C	**LN016N085C** **CYWWZZ** **XXXXXX**

4.Limiting Values

Symbol	Parameter	Conditions	Min	Max	Unit
V_{DS}	Drain-Source Voltage	T_C = 25 ℃	85	-	V
V_{GS}	Gate-Source Voltage	T_C = 25 ℃	-	±20	V
I_D	Drain Current (DC)	T_C = 25 ℃, V_{GS} = 10 V	-	481	A
		T_C = 100 ℃, V_{GS} = 10 V	-	304	A
$I_{DM}{}^*$	Drain Current (Pulsed)	T_C = 25 ℃, V_{GS} = 10 V	-	720	A
P_{tot}	Drain power dissipation	T_C = 25 ℃	-	417	W
T_{stg}	Storage Temperature		-55	150	℃
T_J	Junction Temperature		-	150	℃
I_S	Continuous-Source Current	T_C = 25 ℃	-	180	A
E_{AS}	Single Pulsed Avalanche Energy	V_{DD}= 8 V , L= 0.5mH	-	630	mJ
$R_{\theta JA}{}^{**}$	Thermal Resistance- Junction to Ambient		-	62.5	℃/W
$R_{\theta JC}{}^{**}$	Thermal Resistance- Junction to Case		-	0.3	

Notes :
* Pulse width ≤ 300 μs, duty cycle ≤ 2%
** Surface Mounted on minimum footprint pad area.
*** limited by bonding wire

5.Ordering Code

Product Name	Package	Reel Size	Tape width	Quantity	Note
LN016N085C	**TO220C**			**50**	

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)

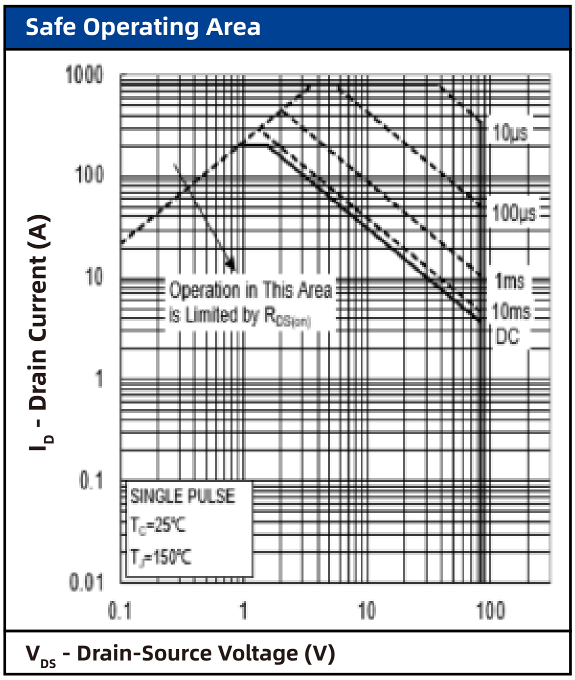
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS} = 0 V, I_{DS} = 250 μA	85	95	-	V
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_{DS} = 250 μA	2	-	4	V
I_{DSS}	Drain Leakage Current	V_{DS} = 80 V, V_{GS} = 0 V		-	1	μA
I_{GSS}	Gate Leakage Current	V_{GS} = 0 V, V_{GS} = ± 20 V	-	-	± 100	nA
$R_{DS(ON)}{}^{a}$	On-State Resistance	V_{GS} = 10 V, I_{DS} = 50 A	-	1.6	1.8	mΩ
Diode Characteristics			-			
$V_{SD}{}^{a}$	Diode Forward Voltage	I_{SD} = 50 A, V_{GS} = 0 V	-	-	1.2	V
t_{rr}	Reverse Recovery Time	I_{DS} = 50 A, V_{GS} = 0 V	-	120	-	nS
Q_{rr}	Reverse Recovery Charge	dI_{SD}/dt = 100 A/μs	-	360	-	nC
Dynamic Characteristics^{b}						
C_{iss}	Input Capacitance	V_{GS} = 0 V, V_{DS} = 50 V Frequency = 1 MHz	-	14490	-	pF
C_{OSS}	Output Capacitance		-	2350	-	
C_{rSS}	Reverse Transfer Capacitance		-	472	-	
t_d(on)	Turn-on Delay Time	V_{DS} = 50 V, V_{GEN} = 10 V, R_G = 4.5 Ω, R_L = 1 Ω, I_{DS} = 50 A	-	39	-	nS
t_r	Turn-on Rise Time		-	122	-	
t_d(off)	Turn-off Delay Time		-	115	-	
t_f	Turn-off Fall Time		-	137	-	
Gate Charge Characteristics^{b}						
Q_g	Total Gate Charge	V_{DS} = 50 V, V_{GS} = 10 V, I_{DS} = 50 A	-	240	-	nC
Q_{gs}	Gate-Source Charge		-	56	-	
Q_{gd}	Gate-Drain Charge		-	60	-	

Notes：

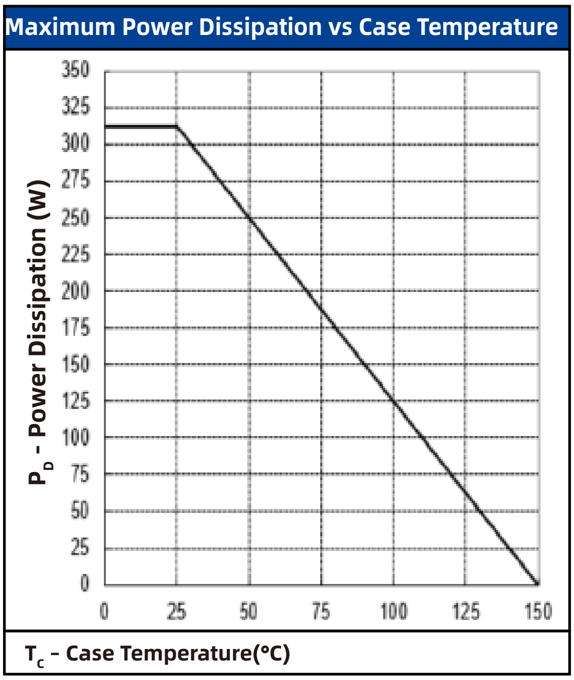
a : Pulse test ; pulse width ≤ 300 μs, duty cycle ≤ 2%
b : Guaranteed by design, not subject to production testing

7. Typical Characteristics

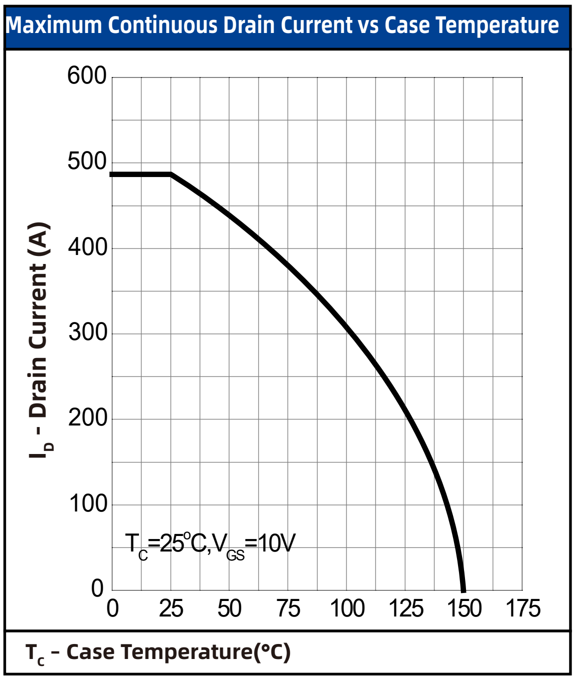
Safe Operating Area



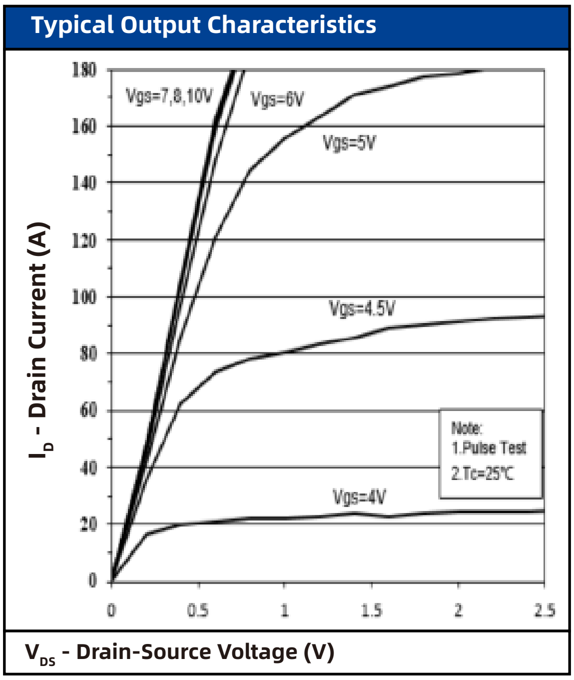
Maximum Power Dissipation vs Case Temperature



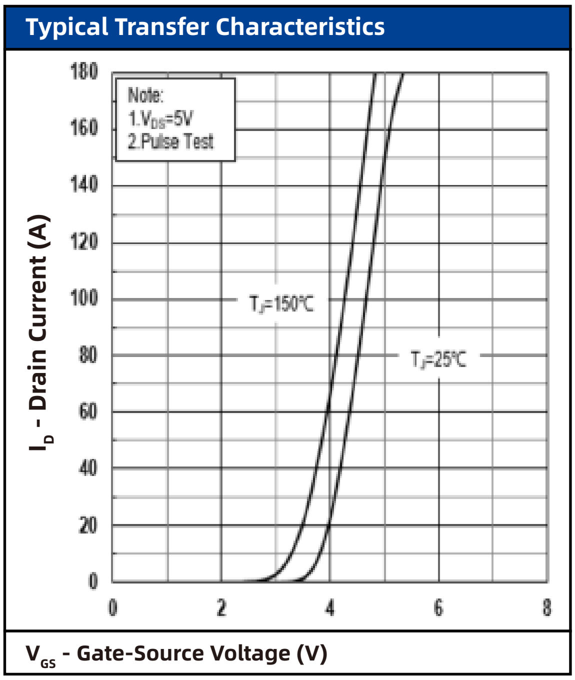
Maximum Continuous Drain Current vs Case Temperature

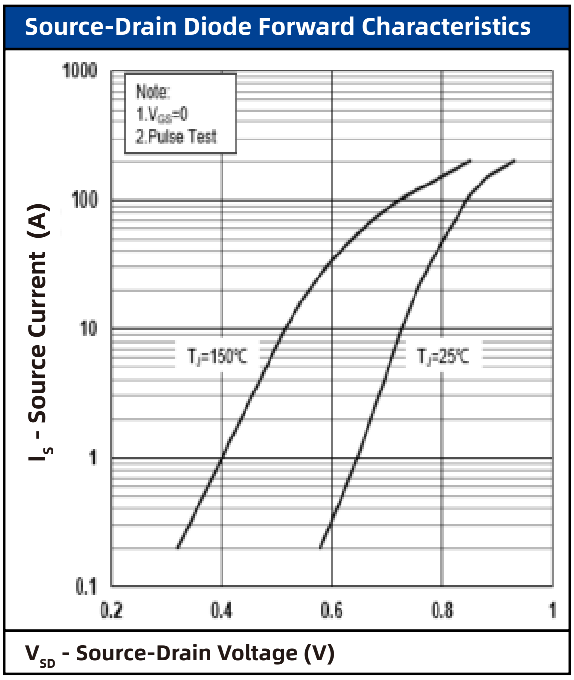


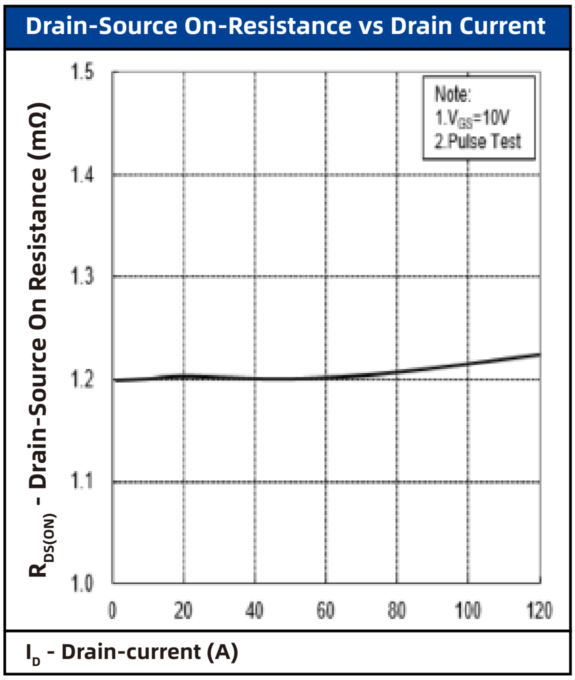
Typical Output Characteristics

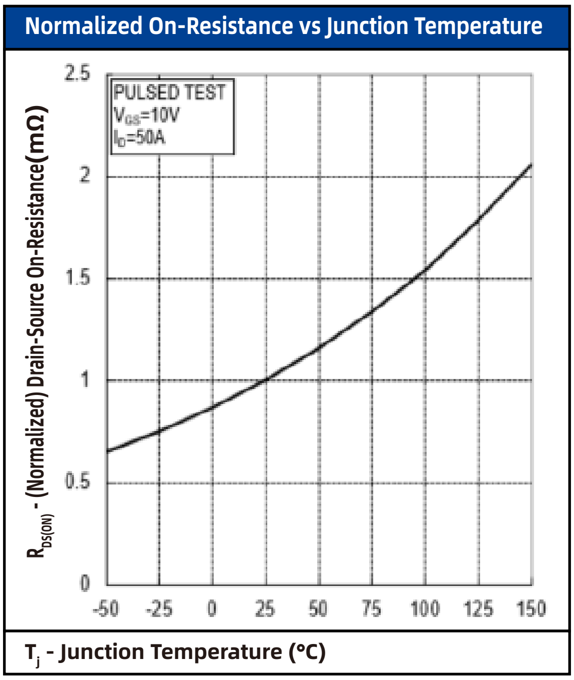


7. Typical Characteristics (cont.)


Typical Transfer Characteristics

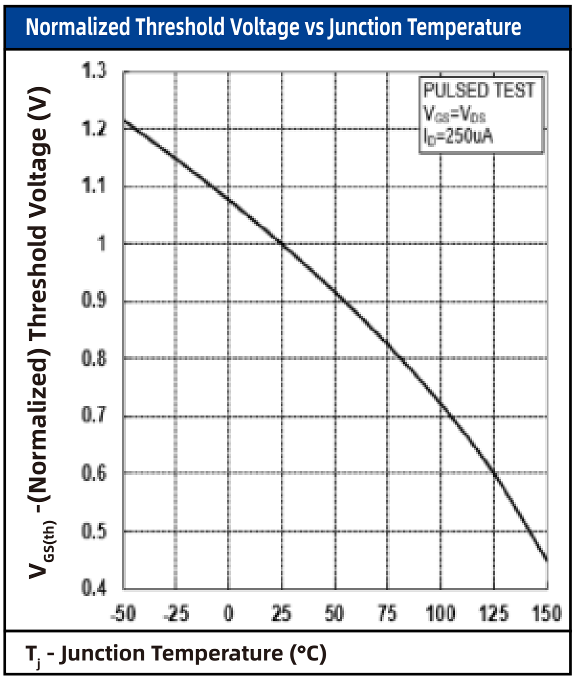

Source-Drain Diode Forward Characteristics


Drain-Source On-Resistance vs Drain Current

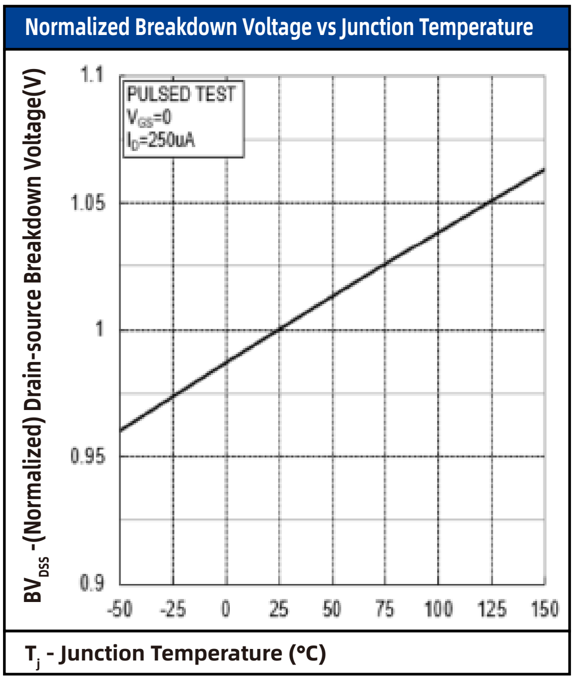

Normalized On-Resistance vs Junction Temperature

7. Typical Characteristics (cont.)

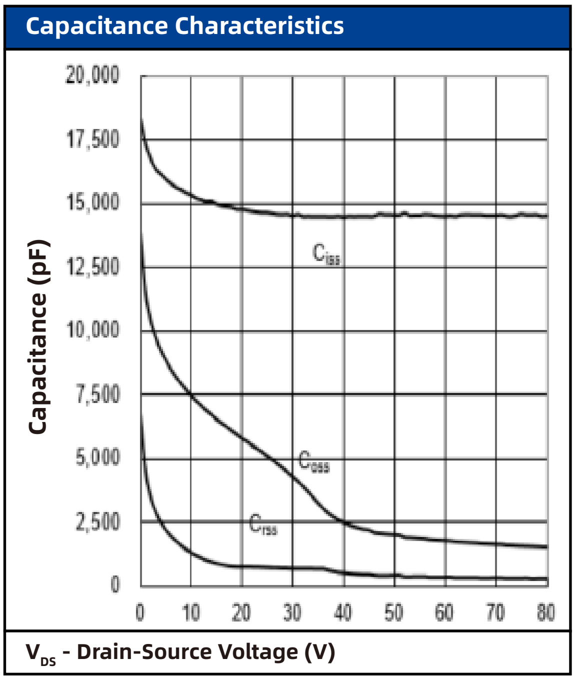
Normalized Threshold Voltage vs Junction Temperature



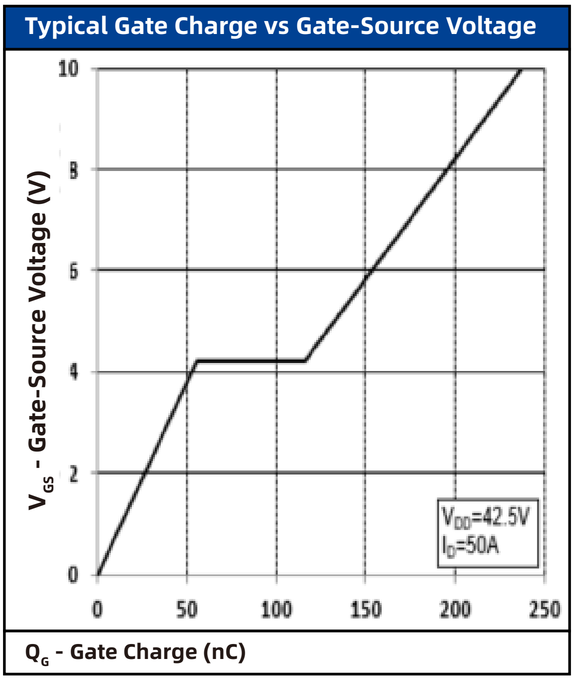
Normalized Breakdown Voltage vs Junction Temperature



Capacitance Characteristics

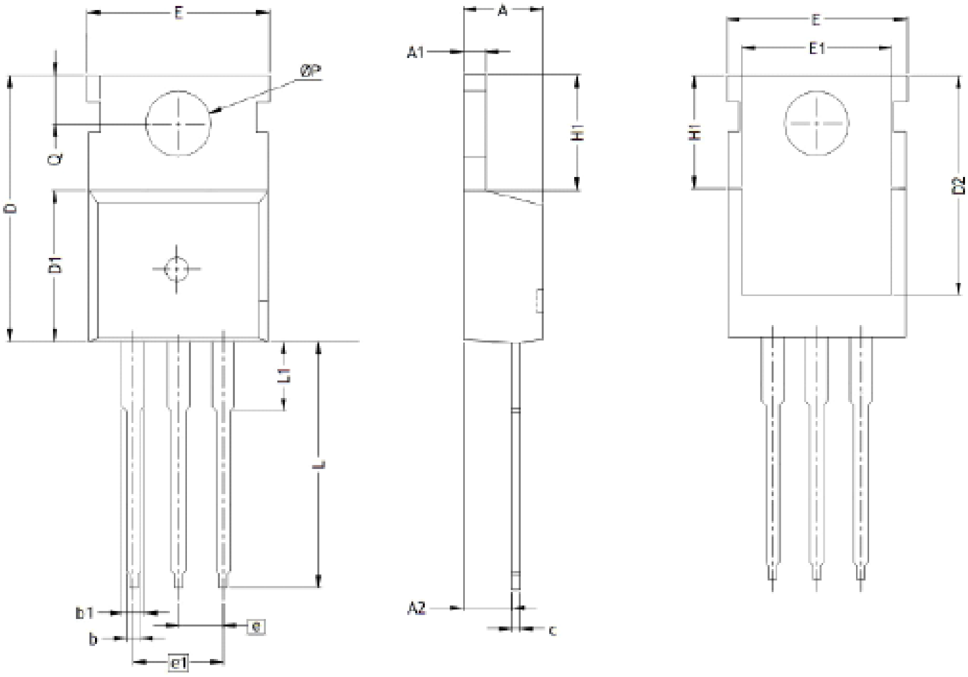


Typical Gate Charge vs Gate-Source Voltage



8. Package Dimensions

TO-220C-3L



Symbol	Dimensions In Millimeters	
	MIN.	MAX.
A	4.25	4.65
A1	1.25	1.35
A2	2.35	2.55
b	0.7	0.9
b1	1.15	1.75
c	0.45	0.61
D	14.35	16.51
D1	8.58	9.50
D2	13.05	13.65
E	9.90	10.50
E1	7.85	8.89
e	2.54BSC	
e1	5.08BSC	
H1	6.30	6.65
L	12.85	13.50
L1	2.85	3.25
ΦP	3.53	4.09
Q	2.70	2.93