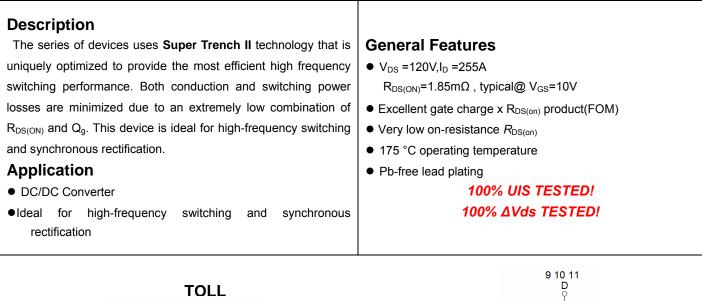
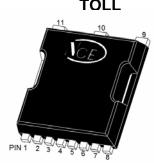
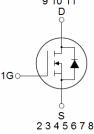




NCE N-Channel Super Trench II Power MOSFET







Schematic Diagram

Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity
NCEP025N12LL	NCEP025N12LL	TOLL	-	-	-

Absolute Maximum Ratings (Tc=25°C unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	Vds	120	V
Gate-Source Voltage	V _{GS}	±20	V
Drain Current-Continuous	Ι _D	255	А
Drain Current-Continuous(T _C =100 °C)	I _D (100℃)	185	A
Pulsed Drain Current	I _{DM}	1020	A
Maximum Power Dissipation	PD	400	W
Derating factor		2.67	W/°C
Single pulse avalanche energy (Note 4)	E _{AS}	2800	mJ
Operating Junction and Storage Temperature Range	T _J ,T _{STG}	-55 To 175	°C

Thermal Characteristic

Thermal Resistance, Junction-to-Case	R _{θJC}	0.38	°C/W
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Parameter	Symbol	Condition	Min	Тур	Max	Unit
Off Characteristics				•		
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V I _D =250µA	120		-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =120V,V _{GS} =0V	-	-	1	μA
Gate-Body Leakage Current	I _{GSS}	V_{GS} =±20V, V_{DS} =0V	-	-	±100	nA
On Characteristics (Note 2)						
Gate Threshold Voltage	V _{GS(th)}	$V_{DS}=V_{GS}$, $I_{D}=250\mu A$	2.0	3.0	4.0	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =127.5A	-	1.85	2.5	mΩ
Forward Transconductance	g _{FS}	V _{DS} =5V,I _D =127.5A		200	-	S
Dynamic Characteristics (Note3)			•			
Input Capacitance	C _{lss}	V _{DS} =60V,V _{GS} =0V,	-	15500	-	PF
Output Capacitance	C _{oss}		-	1020	-	PF
Reverse Transfer Capacitance	Crss	F=1.0MHz	-	23	-	PF
Switching Characteristics (Note 3)	· · ·					
Turn-on Delay Time	t _{d(on)}		-	37	-	nS
Turn-on Rise Time	tr	V_{DD} =60V,I _D =127.5A V_{GS} =10V,R _G =1.6Ω	-	29	-	nS
Turn-Off Delay Time	t _{d(off)}		-	82	-	nS
Turn-Off Fall Time	t _f		-	34	-	nS
Total Gate Charge	Qg		-	225	-	nC
Gate-Source Charge	Q _{gs}	V _{DS} =60V,I _D =127.5A, V _{GS} =10V	-	73		nC
Gate-Drain Charge	Q _{gd}	VGS-10V	-	50		nC
Drain-Source Diode Characteristics						
Diode Forward Voltage (Note 3)	V _{SD}	V _{GS} =0V,I _S =127.5A	-		1.2	V
Diode Forward Current (Note 2)	Is		-	-	255	Α
Reverse Recovery Time	trr	T_J = 25°C, I_F = 127.5A	-	105	-	nS
Reverse Recovery Charge	Qrr	di/dt = 100A/µs ^(Note2)	-	290	-	nC

Electrical Characteristics (T_c=25°C unless otherwise noted)

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.

2. Pulse Test: Pulse Width \leq 300µs, Duty Cycle \leq 2%.

3. Guaranteed by design, not subject to production

4. EAS condition : Tj=25 $^\circ \!\! C$,V_DD=50V,V_G=10V,L=0.5mH,Rg=25 Ω



NCEP025N12LL

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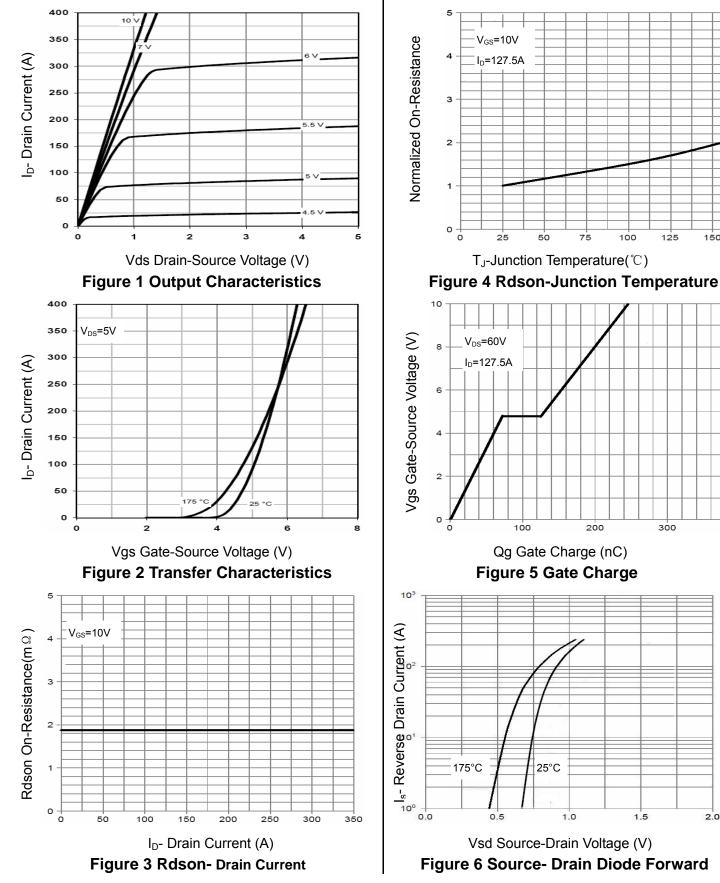
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125

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400

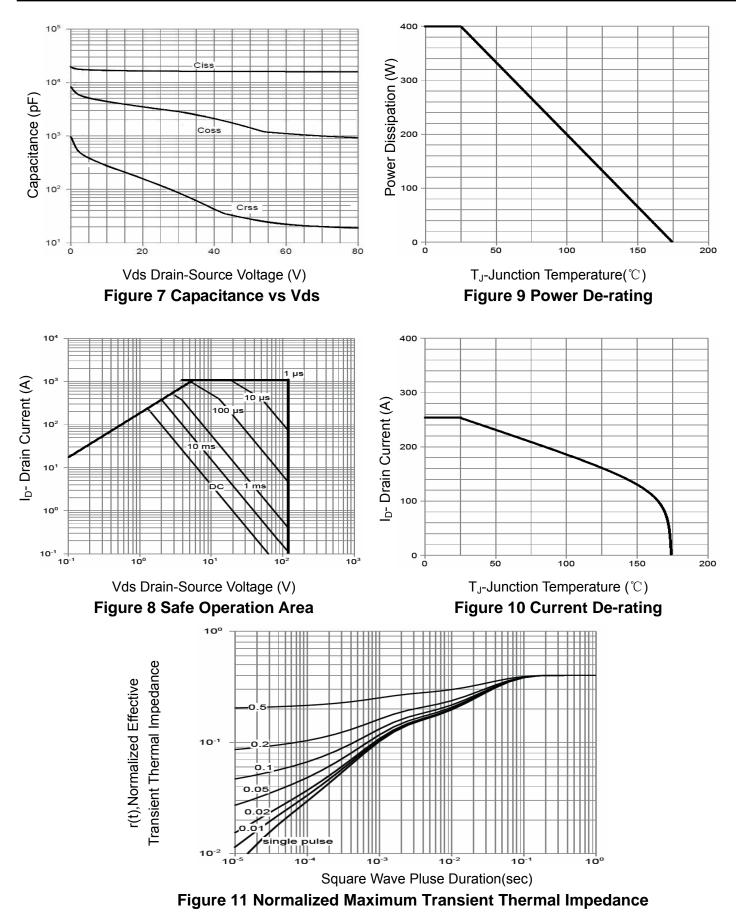
Typical Electrical and Thermal Characteristics



2.0

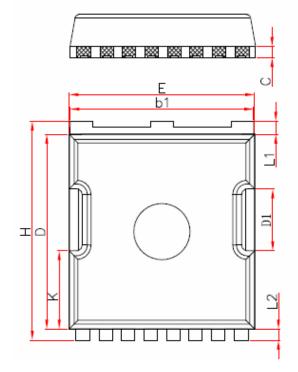


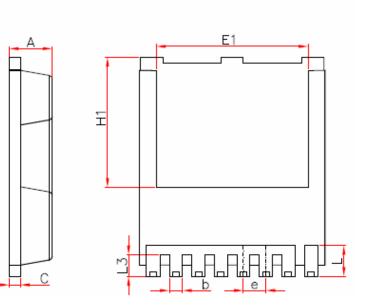
NCEP025N12LL





TOLL Package Information





Symbol	Millimeters			
	Min.	Nom.	Max.	
А	2.20	2.30	2.40	
b	0.65	0.75	0.85	
b1	9.70	9.80	9.90	
С	0.50	0.60	0.70	
D	10.30	10.40	10.50	
D1	3.15	3.3	3.45	
Е	9.70	9.90	10.10	
E1	8.00	8.10	8.20	
е	1.10	1.20	1.30	
Н	11.6	11.7	11.8	
H1	6.85	6.95	7.05	
K	4.08	4.18	4.28	
L	1.60	1.65	2.10	
L1	0.60	0.70	0.80	
L2	0.50	0.60	0.70	
L3	1.05	1.20	1.30	



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