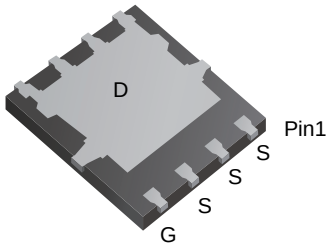
LTM03N150

30V/150A N-Channel Advanced Power Mosfet

Features

- Low $R_{DS(on)}$ @ 4.5V Logic
- 5V Logic Level Control
- PDFN5×6 SMD Package
- Lead free in comply with EU RoHS 2011/65/EU directives



Applications

- High Side Load Switch
- Battery Switch
- Optimized for Power Management Applications for Portable Products, such as Aeromodelling, Power bank, Brushless motor, Main board , and Others

Ordering Information

Part Number	Marking	Shipping	Reel
LTM03N150-TR5	PTN03N150	5000PCS Tape&Reel	13 inchs

Absolute Maximum Ratings

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

Symbol	Parameter		Rating	Unit
Common Ratings (T_C=25°C Unless Otherwise Noted)				
V_{GS}	Gate-Source Voltage		±20	V
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage		30	V
T_J	Maximum Junction Temperature		150	°C
T_{STG}	Storage Temperature Range		-55 to 150	°C
I_S	Diode Continuous Forward Current (Note 1)	T_C=25°C	150	A
Mounted on Large Heat Sink				
I_{DM}	Pulse Drain Current Tested (Sillicon Limit)	T_C=25°C	600	A
I_D	Continuous Drain current @V_{GS}=10V	T_C=25°C	150	A
P_D	Maximum Power Dissipation	T_C=25°C	75	W
EAS	Avalanche Energy, Single Pulsed (Note 5)		225	mJ
$R_{\theta JC}$	Thermal Resistance *Junction−to−*Case – Steady State (Note 2)		1.67	°C/W

Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Electrical Characteristics @ T_J = 25°C (unless otherwise stated)						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	VGS=0V ID=250μA	30	--	--	V
I_{DSS}	Zero Gate Voltage Drain current(Tc=25℃)	VDS=30V,VGS=0V	--	--	1	μA
I_{GSS}	Gate-Body Leakage Current	VGS=±20V,VDS=0V	--	--	±100	nA
$V_{GS(TH)}$	Gate Threshold Voltage	VDS=VGS,ID=-250μA	1	--	2.5	V
$R_{DS(ON)}$	Drain-Source On-State Resistance (Note 3)	VGS=10V, ID=30A	--	1.4	1.8	mΩ
$R_{DS(ON)}$	Drain-Source On-State Resistance (Note 3)	VGS=4.5V, ID=20A	--	2.4	3.2	mΩ
Dynamic Electrical Characteristics @ T_J = 25°C (unless otherwise stated) note 4						
C_{iss}	Input Capacitance	VDS=15V,VGS=0V, f=1MHz	--	5217	--	pF
C_{oss}	Output Capacitance		--	663	--	pF
C_{rss}	Reverse Transfer Capacitance		--	539	--	pF
Q_g	Total Gate Charge	VDS=15V,ID=30A, VGS=10V	--	98	--	nC
Q_{gs}	Gate-Source Charge		--	9	--	nC
Q_{gd}	Gate-Drain Charge		--	20.5	--	nC
Switching Characteristics note B						
$t_{d(on)}$	Turn-on Delay Time	VDD=15V, ID=30A, RG=3Ω, VGS=10V	--	27	--	nS
t_r	Turn-on Rise Time		--	33	--	nS
$t_{d(off)}$	Turn-Off Delay Time		--	97	--	nS
t_f	Turn-Off Fall Time		--	35	--	nS
Source- Drain Diode Characteristics@ TJ = 25°C (unless otherwise stated)						
V_{SD}	Forward on voltage (Note 3)	IS=30A,VGS=0V	--		1.2	V
t_{rr}	Reverse Recovery Time	Tj=25℃ IF=IS di/dt=100A/μs (Note 3)	--	48	--	nS
Q_{rr}	Reverse Recovery Charge		--	45	--	nC

Note:
1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t≤ sec.
3: Pulse Test: pulse width ≤ 300 us, duty cycle ≤ 2%
4. Guaranteed by design, not subject to production
5. EAS condition : TJ = 25°C,VDD=20V,VG=10V, R_G = 25Ω

Characteristics Curves

Fig.1 Output Characteristics

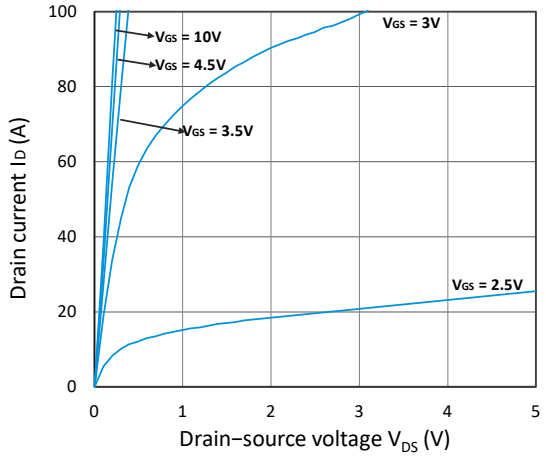


Fig.2 Transfer Characteristics

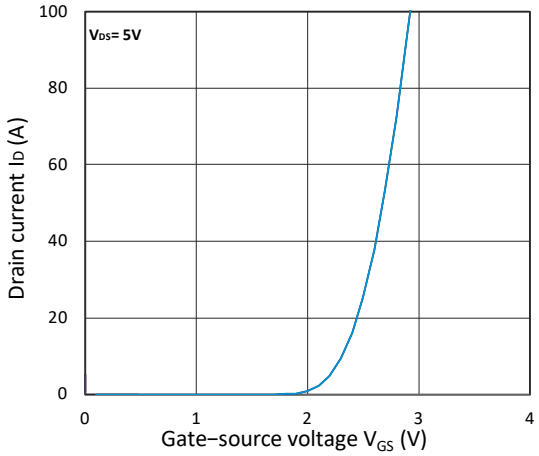


Fig.3 Forward Characteristics of Reverse

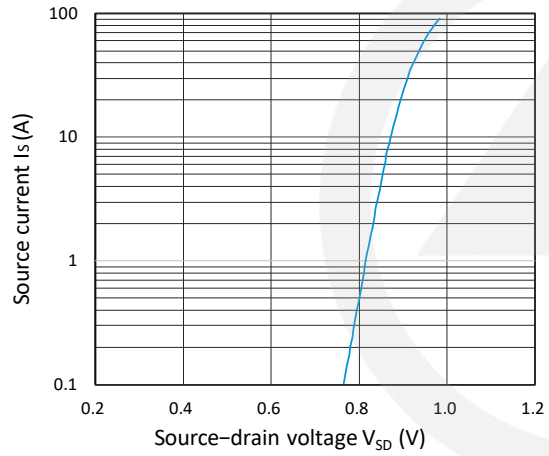


Fig.4 $R_{DS(ON)}$ vs V_{GS}

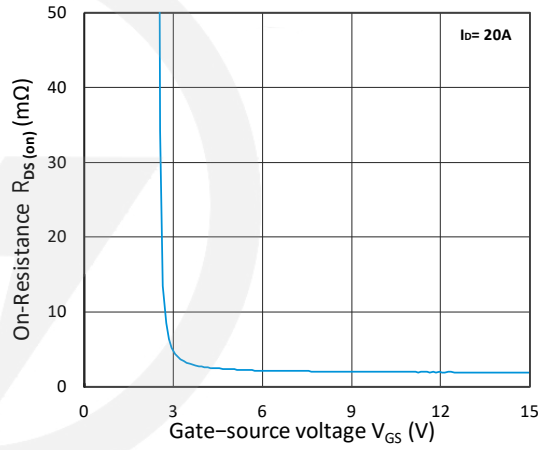


Fig.5 $R_{DS(ON)}$ vs I_D

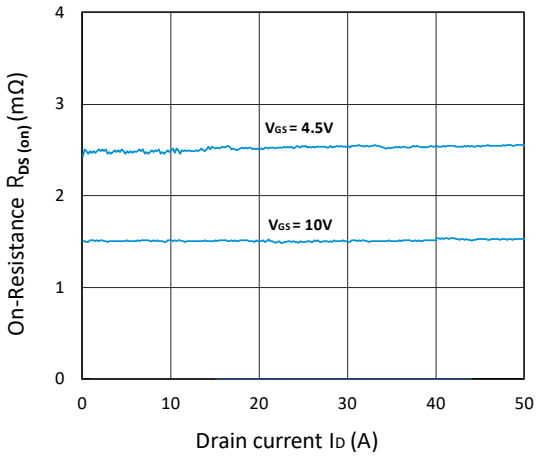
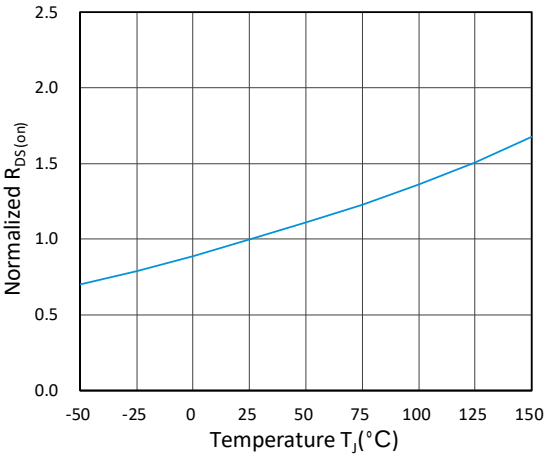


Fig.6 Normalized $R_{DS(on)}$ vs Temperature



Characteristics Curves

Fig.7 Capacitance Characteristics

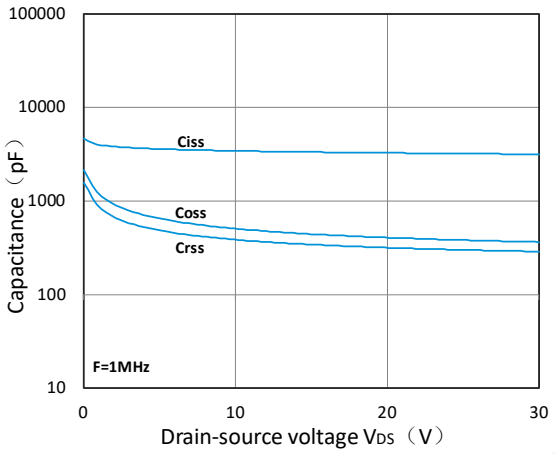


Fig.8 Gate Charge Characteristics

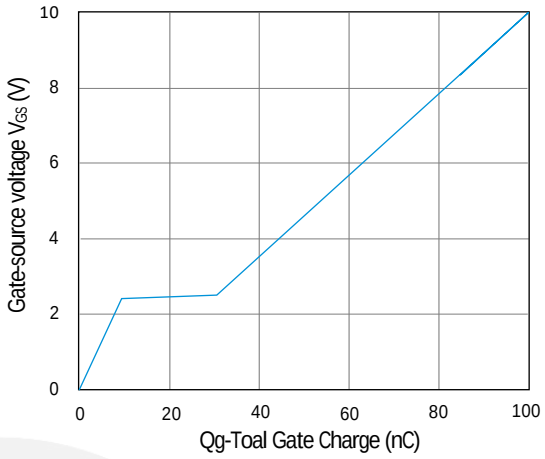


Fig.9 Power Dissipation

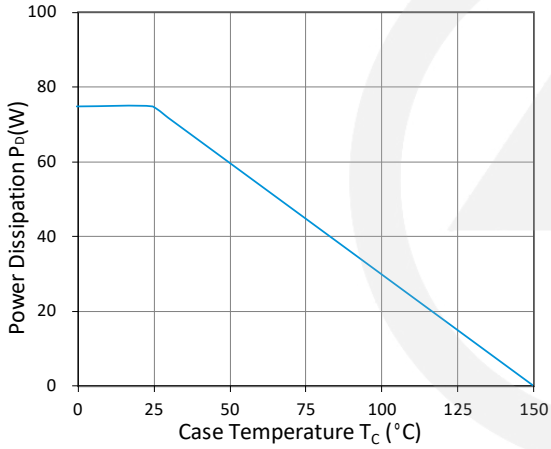


Fig.10 Safe Operating Area

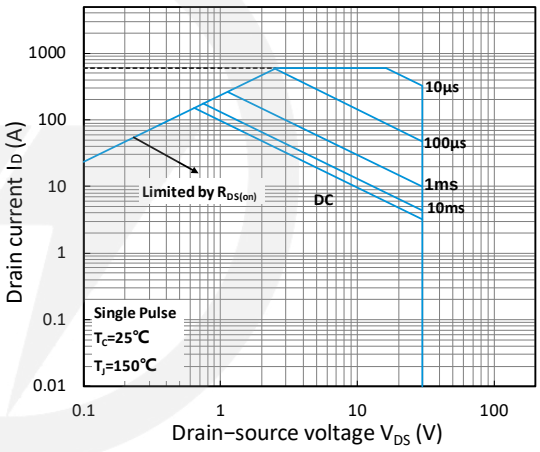
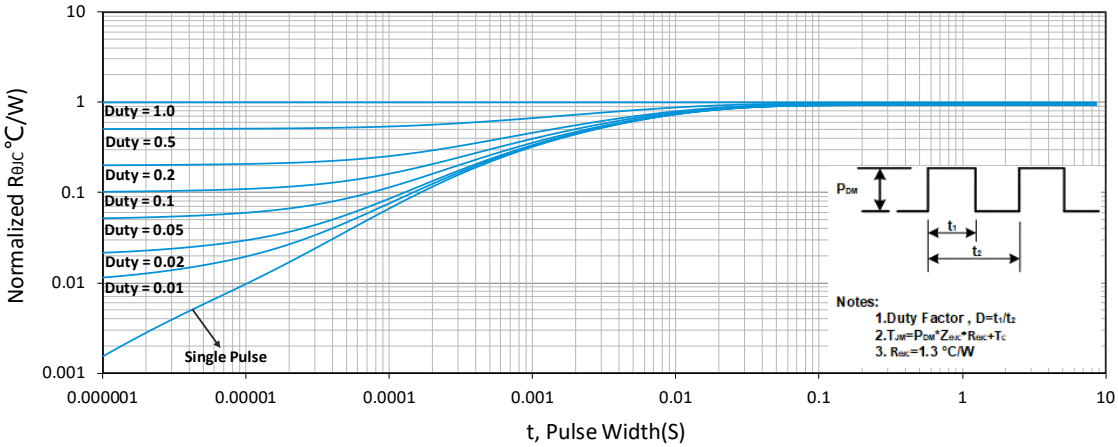
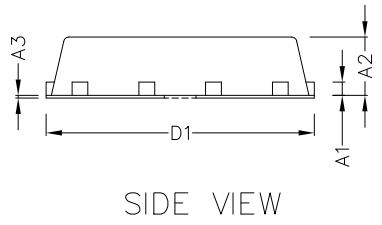


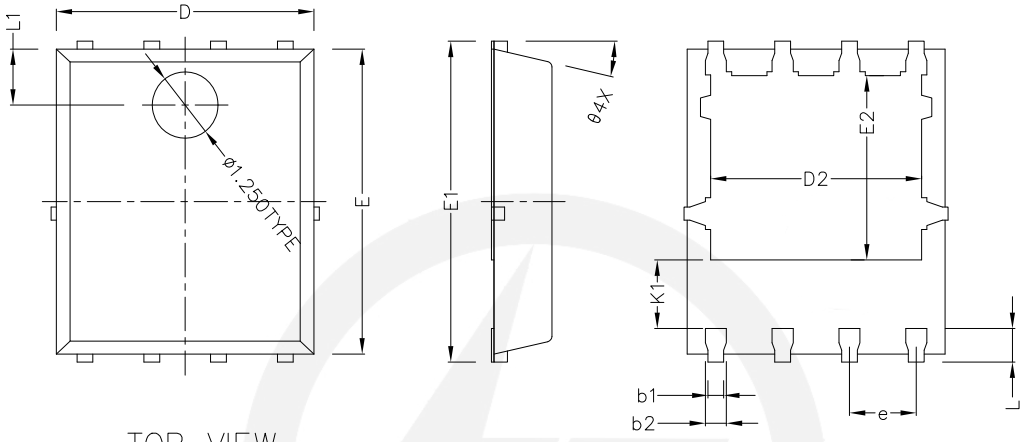
Fig.11 Normalized Maximum Transient Thermal Impedance



PDFN5x6 Package Outline



SIDE VIEW



TOP VIEW

SIDE VIEW

BOTTOM VIEW
OPTION 1

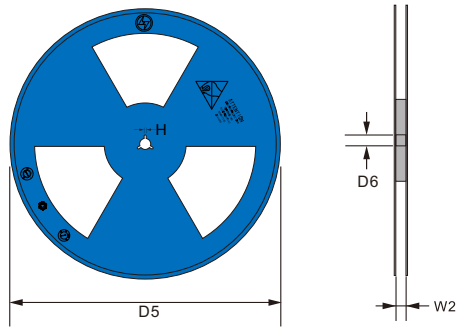
Unit: mm

DIMENSIONS			
SYMBOL	MIN	NORMAL	MAX
A1	0.200	-	0.254
A2	0.900	-	1.200
A3	0.000	-	0.050
b1	0.210	0.300	0.410
b2	0.310	0.400	0.510
D	5.000 BSC		
D1	5.150 BSC		
D2	3.700	4.010	4.200
E	6.000 BSC		
E1	5.950	6.150 BSC	6.300
E2	3.375	3.475	3.760
e	1.270 BSC		
L	0.500	0.630	0.730
L1	1.00REF		
θ	13° TYPE		
K1	1.235 REF		

Reel Dimensions

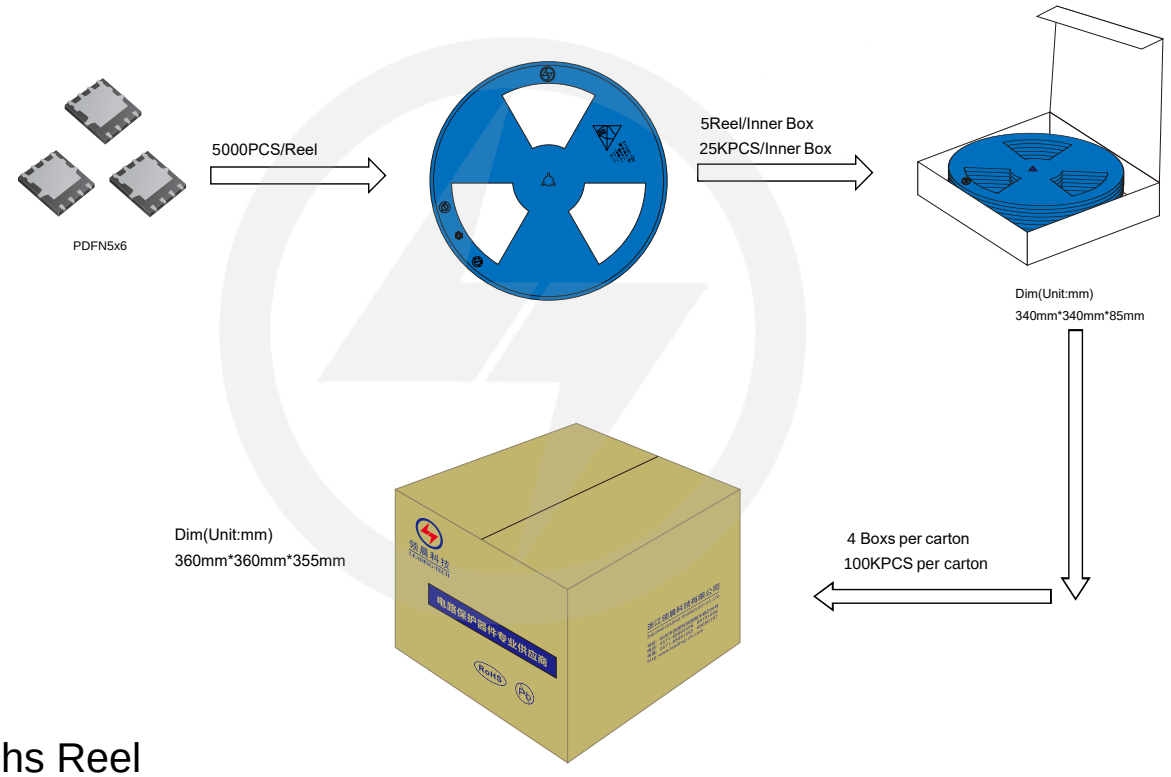
Unit：mm

13” Reel



D5	Φ330.0±2.0
D6	Φ13.5±0.5
H	2.5±1.0
W2	12±2.0
Quantity: 5000PCS	

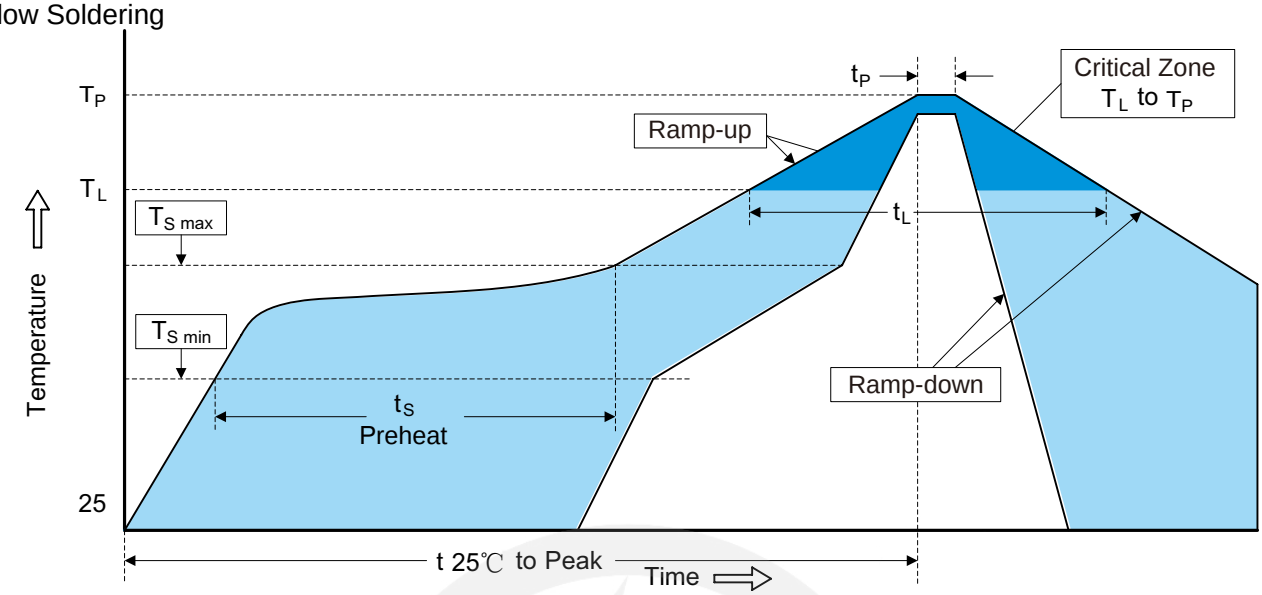
Packaging



13 inchs Reel

Recommended Soldering Conditions

Reflow Soldering



Recommended Conditions

Profile Feature	Pb-Free Assembly
Average ramp-up rate (T_L to T_P)	3℃/second max.
Preheat -Temperature Min ($T_{S\ min}$) -Temperature Max ($T_{S\ max}$) -Time (min to max) (t_S)	 150℃ 200℃ 60-180 seconds
$T_{S\ max}$ to T_L -Ramp-up Rate	 3℃/second max.
Time maintained above: -Temperature (T_L) -Time (t_L)	 217℃ 60-150 seconds
Peak Temperature (T_P)	260℃
Time within 5℃ of actual Peak Temperature (t_P)	20-40 seconds
Ramp-down Rate	6℃/second max.
Time 25℃ to Peak Temperature	8 minutes max.

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Version Update Information

Series NO.	Enactment/Revision Date	Effective Date	Version	Revision Content	Revision Reason	Revision Person	Note
01	2025.02.04	2025.02.04	3.0	New file	/	Ding	
02	2026.01.30	2026.01.30	3.1	Modify the encapsulation dimensions	/	Ding	