MHCHXM®

www.jshxm.com

HXMS30N15LNA

N-Channel Enhancement Mode Power MOSFET

Features

- Uses MHCHXM advanced PerfectMOS technology
- Extremely low on-resistance $R_{DS(on)}$
- Excellent $Q_g x R_{DS(on)}$ product(FOM)
- Excellent Low Ciss
- Qualified according to JEDEC criteria

Applications

- Switching application
- Li-battery protection
- DC-DC

Beneficts

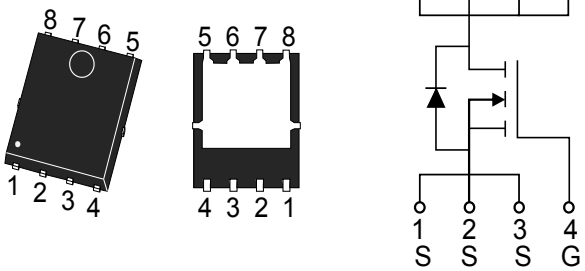
- High robustness and reliability
- Increases maximum current capability
- Low power loss, high power density
- Easy paralleling

Product Summary

V_{DS}	30V
$R_{DS(on)@10V\ typ}$	1.15mΩ
I_D	190A

RoHS Reach

PDFN5060-8L



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

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	±20	V
Drain Current-Continuous	I_D	190	A
Pulsed Drain Current	I_{DM}	760	A
Maximum Power Dissipation	P_D	89	W
Single pulse avalanche energy	E_{AS}	88	mJ
Operating Junction and Storage Temperature Range	T_J,T_{STG}	-55 To 150	℃

EAS condition : Tj=25℃,VD=24V,VG=10V,L=0.1mH,Rg=25Ω,IAS=42A

Thermal Characteristic

Parameter	Symbol	Limit	Unit
Thermal Resistance,Junction-to-Case	$R_{\theta JC}$	1.4	℃/W
Thermal Resistance,Junction-to-Ambient	$R_{\theta JA}$	50	℃/W

Electrical Characteristics (T_C=25℃ unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V I_D=250μA	30	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=30V,V_{GS}=0V	-	-	1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±20V,V_{DS}=0V	-	-	±100	nA
On Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250μA	1.0	1.6	2.2	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=30A	-	1.15	1.45	mΩ
Forward Transconductance	g_{FS}	V_{DS}=5V,I_D=15A	-	40	-	S
Dynamic Characteristics						
Input Capacitance	C_{lss}	V_{DS}=20V,V_{GS}=0V, F=1.0MHz	-	2930	-	pF
Output Capacitance	C_{oss}		-	1480	-	pF
Reverse Transfer Capacitance	C_{rss}		-	82	-	pF
Switching Characteristics						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=20V,I_D=30A V_{GS}=10V,R_G=1.6Ω	-	17.4	-	nS
Turn-on Rise Time	t_r		-	4.1	-	nS
Turn-Off Delay Time	$t_{d(off)}$		-	52.8	-	nS
Turn-Off Fall Time	t_f		-	11.1	-	nS
Total Gate Charge	Q_g	V_{DS}=20V,I_D=30A , V_{GS}=10V	-	44.3	-	nC
Gate-Source Charge	Q_{gs}		-	8	-	nC
Gate-Drain Charge	Q_{gd}		-	5.9	-	nC
Drain-Source Diode Characteristics						
Diode Forward Voltage	V_{SD}	V_{GS}=0V,I_S=30A	-	-	1.2	V
Diode Forward Current	I_S		-	-	190	A
Reverse Recovery Time	t_{rr}	TJ = 25°C, IF = 30A di/dt=100A/μs	-	85	-	nS
Reverse Recovery Charge	Qrr		-	34	-	nC

Typical Electrical and Thermal Characteristics (Curves)

Fig 1: Output Characteristics

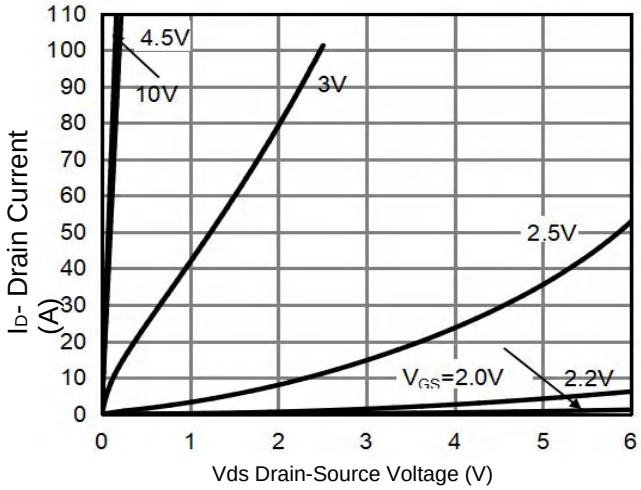


Fig 2: Transfer Characteristics

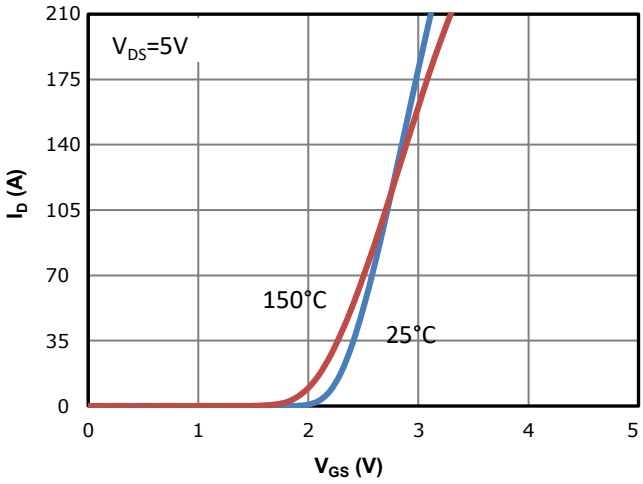


Fig 3: Rds(on) vs Drain Current and Gate Voltage

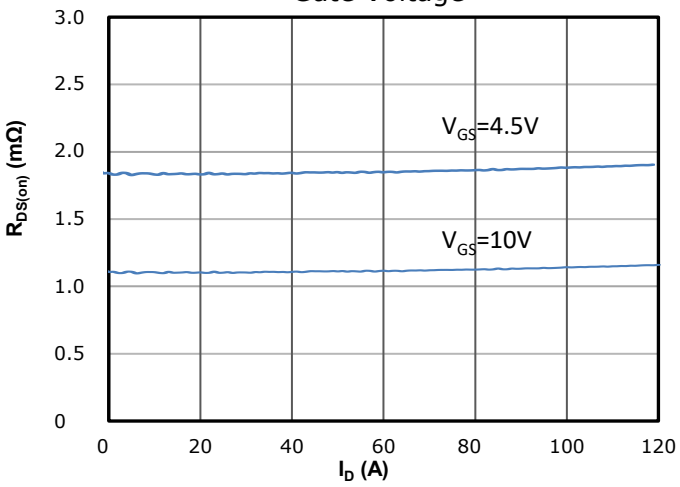


Fig 4: Rds(on) vs Gate Voltage

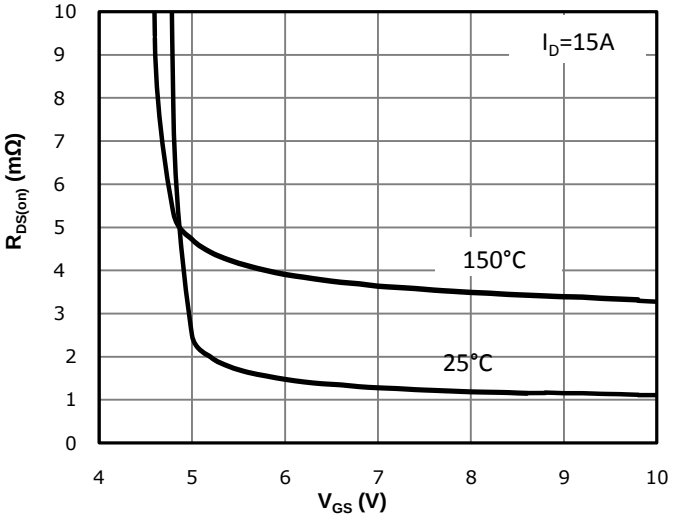


Fig 5: Rds(on) vs. Temperature

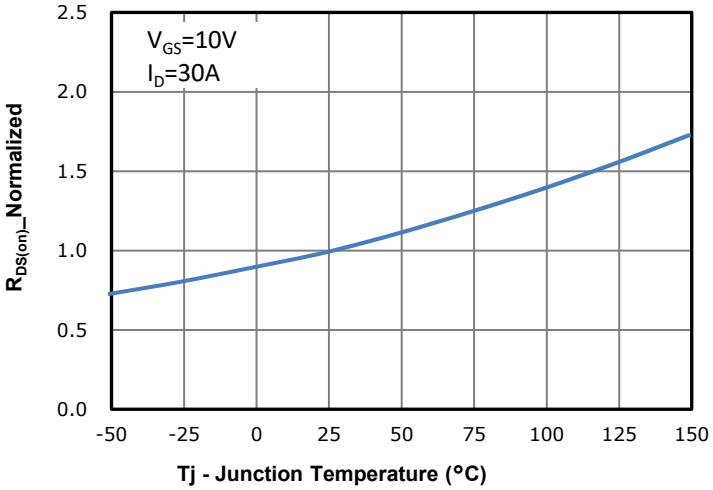


Fig 6: Vgs(th) vs. Temperature

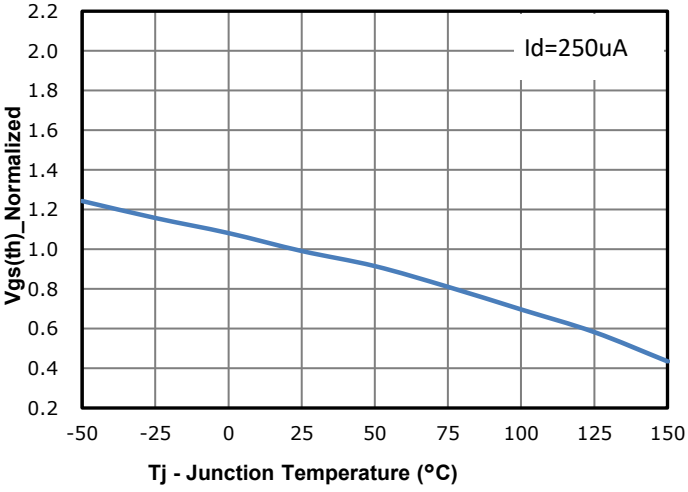


Fig 7: Gate ChargeCharacteristics

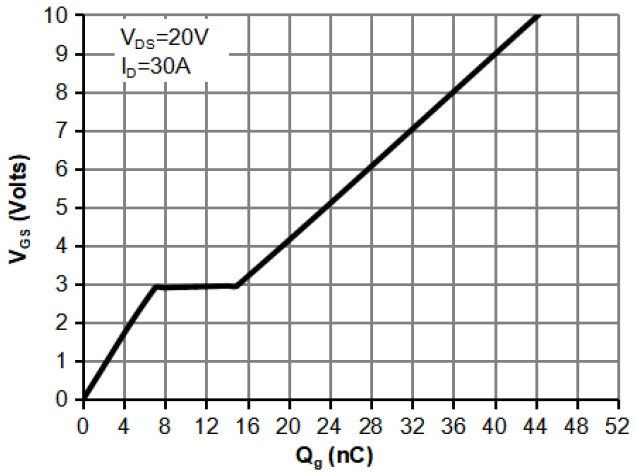


Fig 8: Capacitance Characteristics

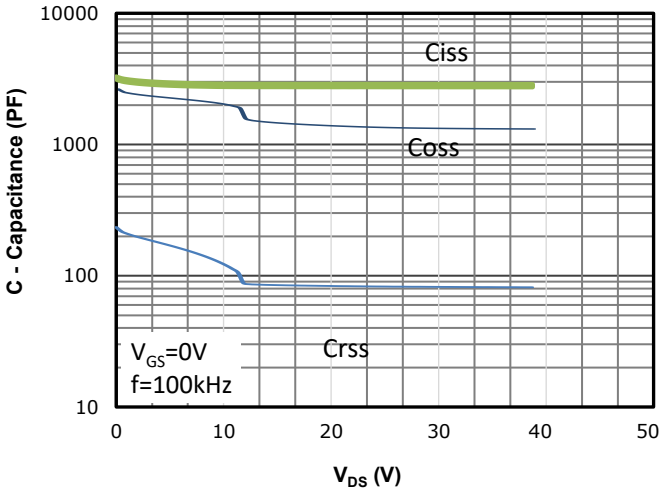


Fig 9: Power Dissipation

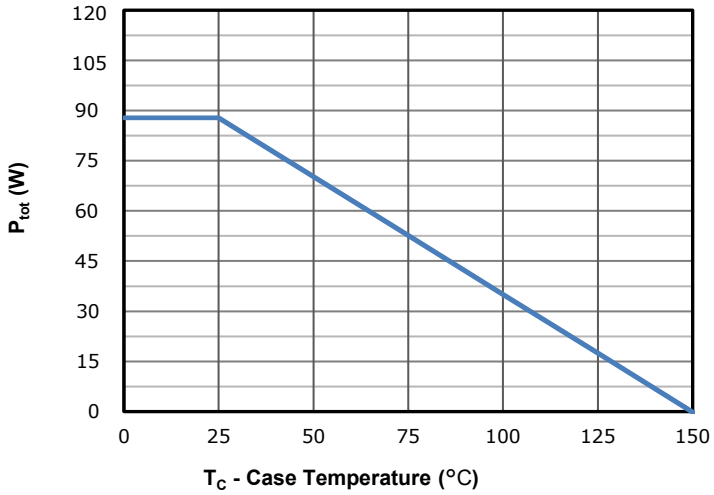


Fig 10: Drain Current Derating

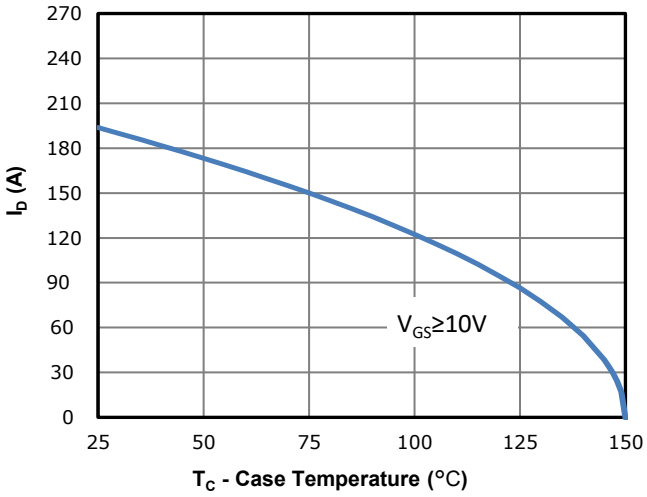


Fig 11:Safe Operation Area

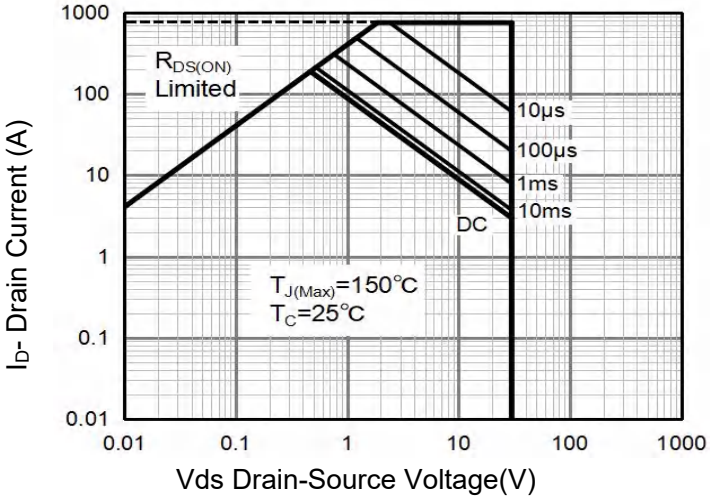
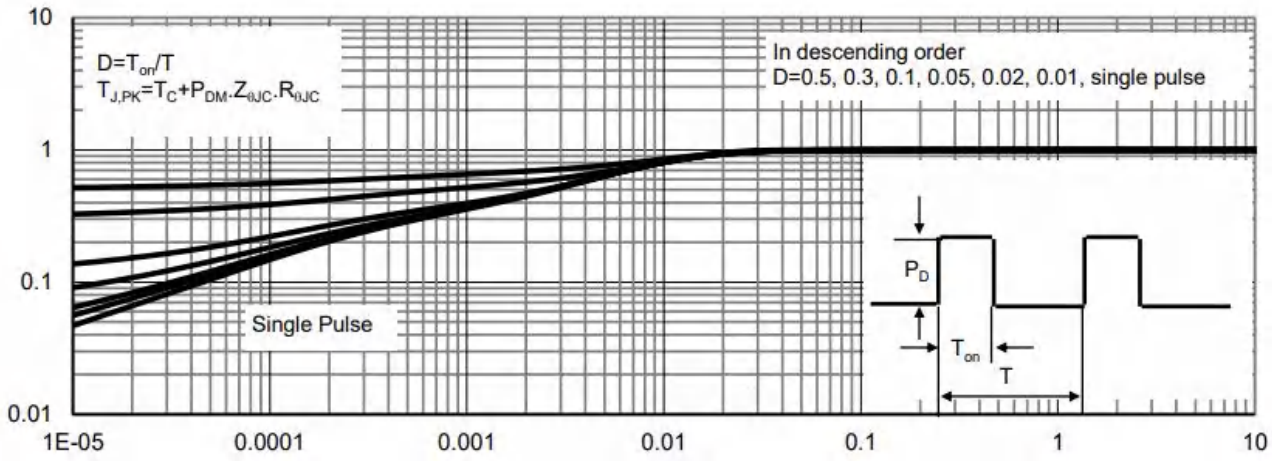


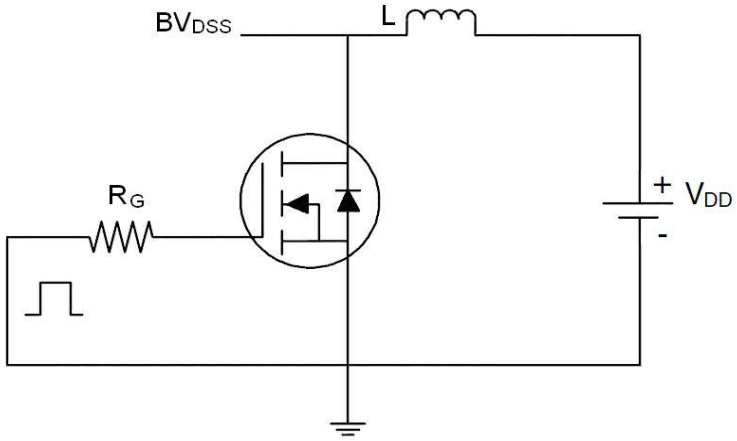
Fig 11:Normalized Maximum Transient Thermal Impedance



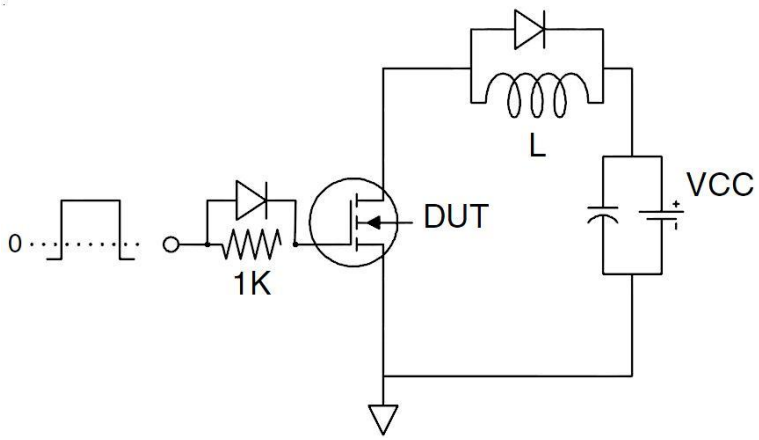
Square Wave Pluse Duration(sec)

Test circuit

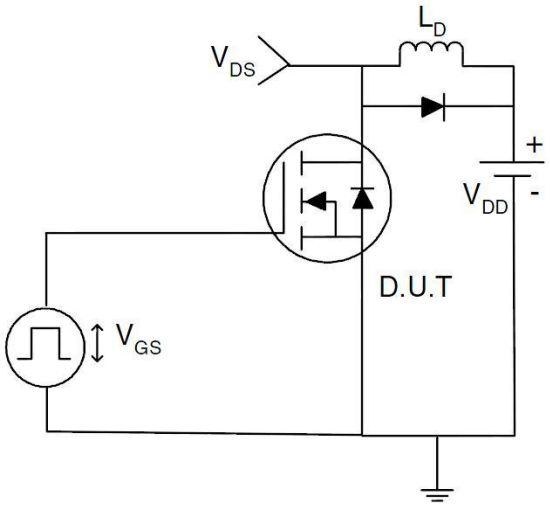
1) E_{AS} Test Circuit



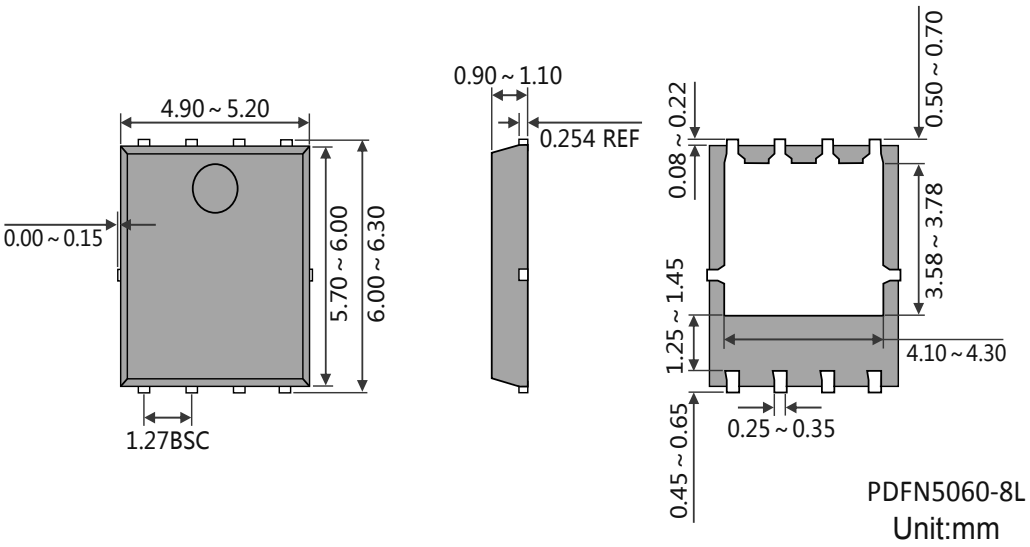
2) Gate Charge Test Circuit



3) Switch Time Test Circuit

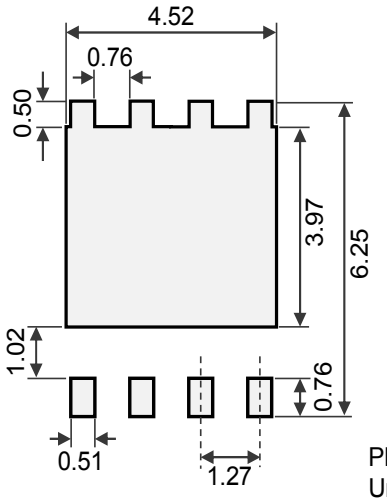


Package information



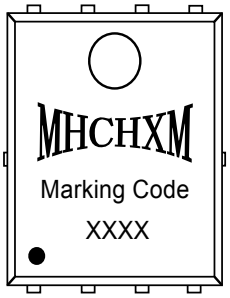
PDFN5060-8L
Unit:mm

Suggested Solder Pad Layout



PDFN5060-8L
Unnoted Tolerance:±0.05
Unit:mm

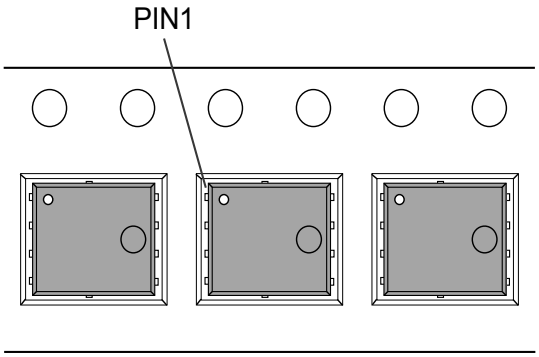
Marking Information



"MHCHXM" = Product Logo
"Marking Code" = The Following
"XXXX" = Date Code Marking

Marking Code	Part Number
S30N15LNA	HXMS30N15LNA

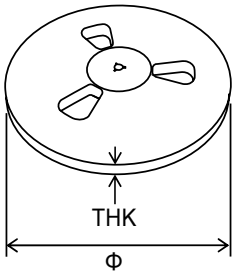
The Orientation Of The Product In The Carrier Tape



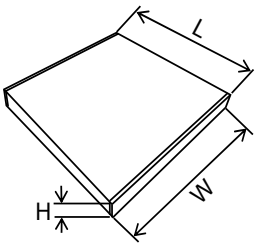
Packing Information

Packaging	Part Number	Quantity(pcs)	Size(mm)
Reel	Reel	5000	Φ330×THK15
	Inner Box	10000	L355×W335×H48
	Outer Box	80000	L415×W375×H360

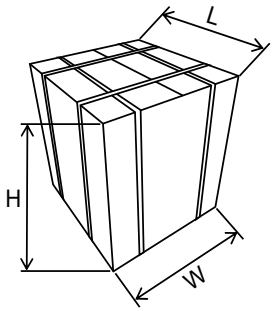
Packaging:Reel



Reel



Reel Inner Box



Reel Outer Box

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