

N-Channel Enhancement Mode MOSFET

GENERAL DESCRIPTION

The ME2306LS-G is the N-Channel logic enhancement mode power field effect transistors, using high cell density, DMOS trench technology.

This high density process is especially tailored to minimize on-state resistance.

These devices are particularly suited for low voltage application such as cellular phone, notebook computer power management and other battery powered circuits, and low in-line power loss that are needed in a very small outline surface mount package.

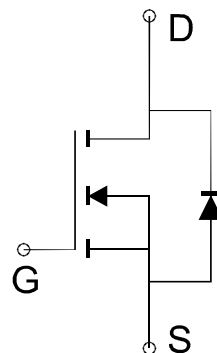
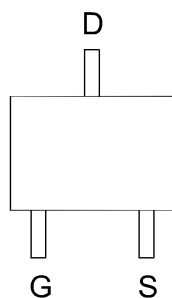
FEATURES

- $R_{DS(ON)}$: 25 m Ω (typ.) @ $V_{GS}=10V$
- $R_{DS(ON)}$: 35 m Ω (typ.) @ $V_{GS}=4.5V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability

PIN CONFIGURATION

(SOT-23)

Top View



Ordering Information: ME2306LS-G (Green product-Halogen free)

Absolute Maximum Ratings ($T_A=25^{\circ}C$ Unless Otherwise Noted)

Parameter		Symbol	Steady State		Unit
Drain-Source Voltage		V _{DSS}	30		V
Gate-Source Voltage		V _{GSS}	±20		V
Continuous Drain Current(T _j =150°C)	T _A =25°C	I _D	4.7		A
	T _A =70°C		3.7		
Pulsed Drain Current		I _{DM}	20		
Maximum Power Dissipation	T _A =25°C	P _D	1.3		W
	T _A =70°C		0.8		
Operating Junction Temperature		T _J	-55 to 150		°C
Thermal Resistance-Junction to Ambient*		R _{θJA}	T _≤ 10 sec	70	°C/W
			Steady State	95	
Thermal Resistance-Junction to Case*		R _{θJC}	65		°C/W

*The device mounted on 1in2 FR4 board with 2 oz copper

N-Channel Enhancement Mode MOSFET

Electrical Characteristics (T_A=25°C Unless Otherwise Specified)

Symbol	Parameter	Limit	Min	Typ	Max	Unit
STATIC PARAMETERS						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	30			V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	1		2.1	
I _{GSS}	Gate-Body Leakage Current	V _{DS} =0V, V _{GS} =±20V			±100	nA
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =30V, V _{GS} =0V			1	μA
		V _{DS} =30V, V _{GS} =0V, T _J =55°C			10	
I _{D(ON)}	On-State Drain Current ^a	V _{DS} ≥5V, V _{GS} = 10V	20			A
R _{DS(ON)}	Drain-Source On-Resistance ^a	V _{GS} =10V, I _D = 4A		25	37	mΩ
		V _{GS} =4.5V, I _D = 3.5A		35	49	
V _{SD}	Diode Forward Voltage	I _S =1.25A, V _{GS} =0V		0.8	1.2	V
G _{FS}	Forward Transconductance	V _{DS} =4.5V, I _D =5A		6		S
DYNAMIC PARAMETERS						
Q _g	Total Gate Charge	V _{DS} =15V, V _{GS} =10V, I _D =4A		13		nC
Q _g	Total Gate Charge	V _{DS} =15V, V _{GS} =4.5V, I _D =4A		6.3		
Q _{gs}	Gate-Source Charge			2.9		
Q _{gd}	Gate-Drain Charge			2.4		
R _g	Gate Resistance	f =1MHz		0.6		Ω
C _{iss}	Input Capacitance	V _{DS} =15V, V _{GS} =0V, f=1MHz		380		pF
C _{oss}	Output Capacitance			64		
C _{rss}	Reverse Transfer Capacitance			15		
t _{d(on)}	Turn-On Delay Time	V _{DD} =15V, R _L =15Ω I _D =1A, V _{GEN} =10V, R _G =6Ω		9		ns
t _r	Rise Time			14		
t _{d(off)}	Turn-Off Delay Time			33		
t _f	Fall Time			3		

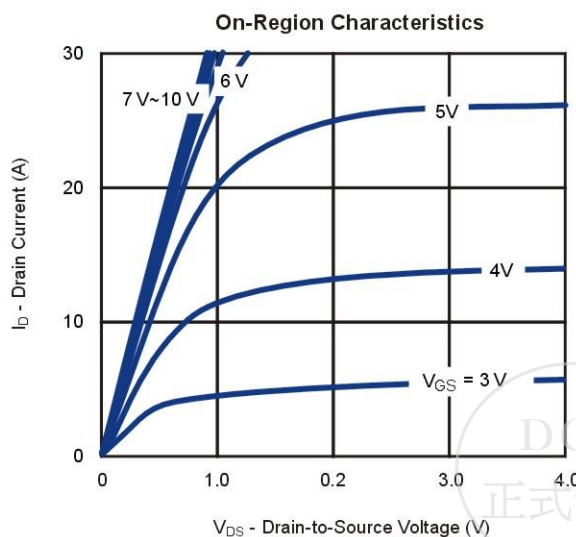
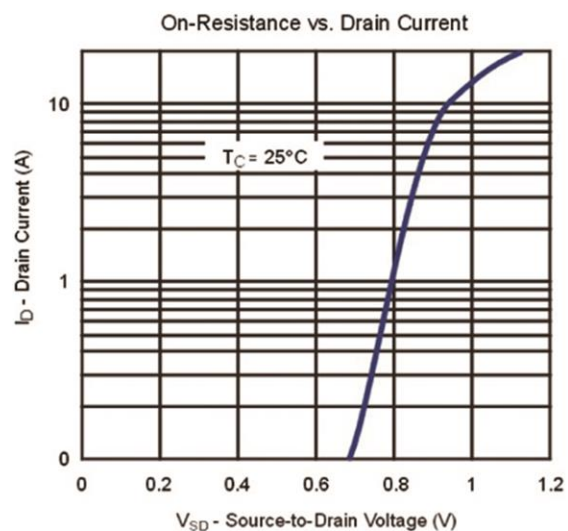
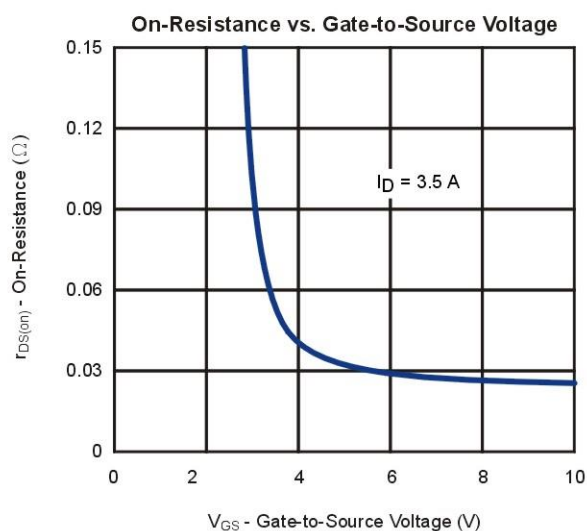
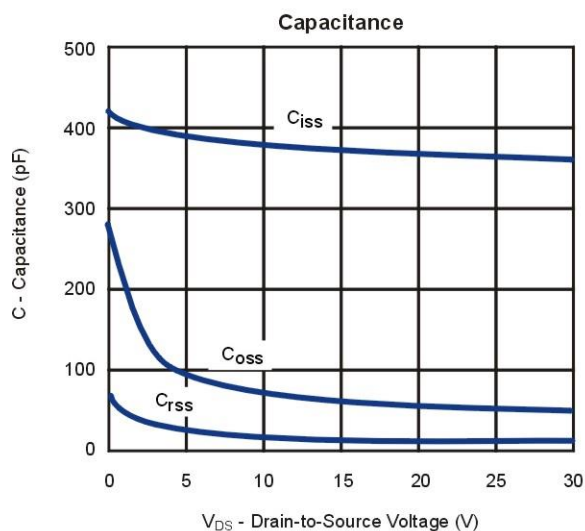
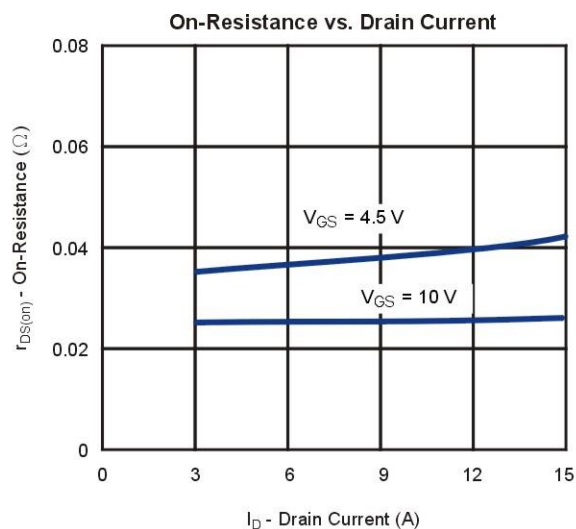
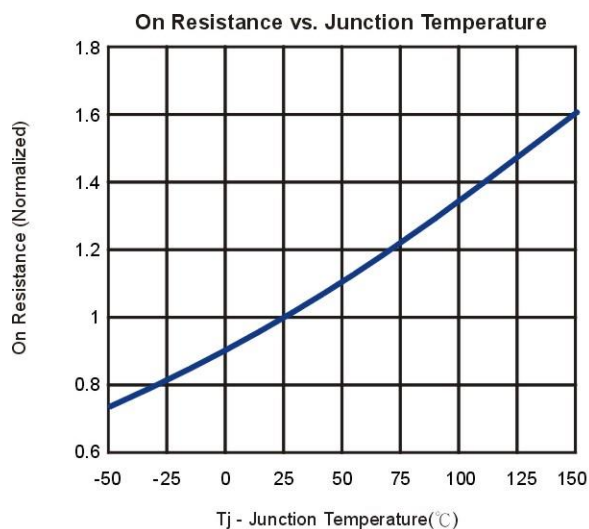
Notes: a. Pulse test: pulse width ≤ 300us, duty cycle ≤ 2%, Guaranteed by design, not subject to production testing.

b. Force mos reserves the right to improve or change product design, functions, reliability, qualified manufacturer without notice.

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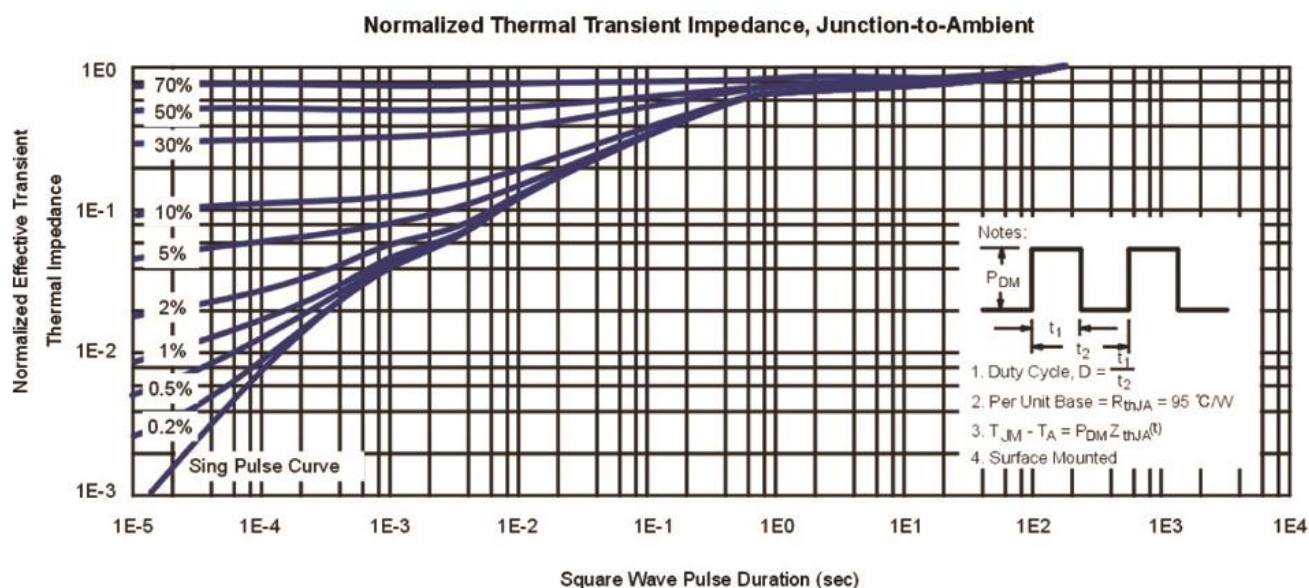
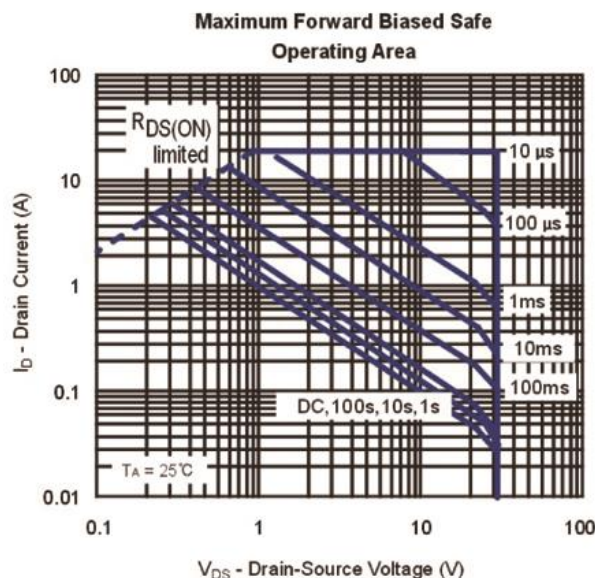
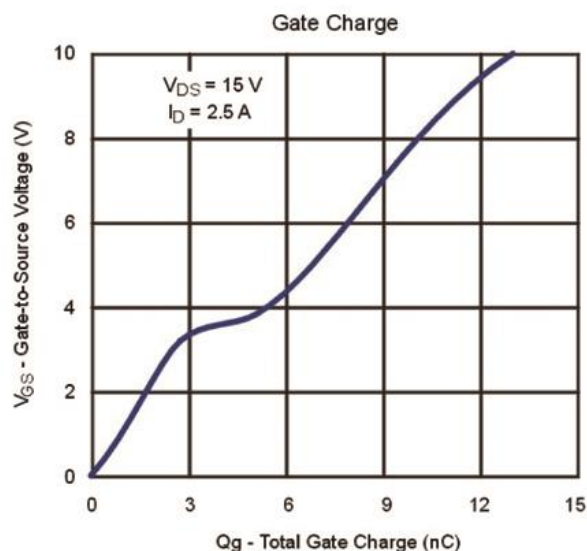
N-Channel Enhancement Mode MOSFET

Typical Characteristics (T_J = 25°C Noted)



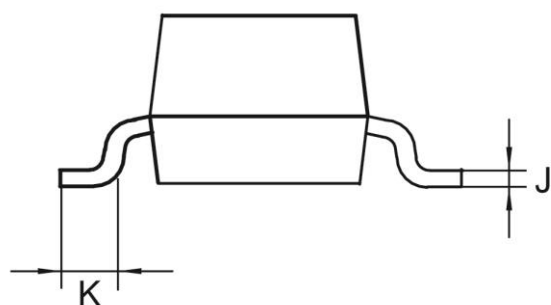
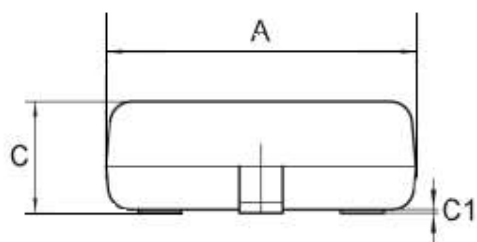
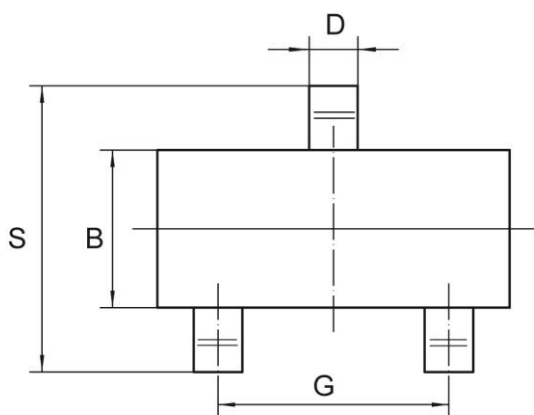
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SOT-23 Package Outline

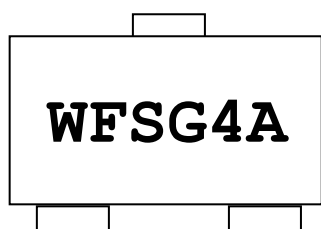


Symbol	MILLIMETERS	
	MIN	MAX
A	2.8	3.0
B	1.2	1.4
C	0.9	1.1
C1	-	0.1
D	0.3	0.5
G	1.90 REF	
J	0.05	0.15
K	0.2	-
S	2.2	2.6

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Device Name: **ME2306LS-G series**

Package: **SOT-23**



D/C :

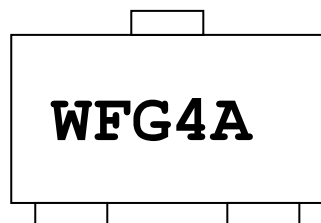
4A is the sequence of "0-9" & "A~Z"

0~9 shown on the 5th position on ---2010~2019

A~Z shown on the 5th position on ---2020~2045

A~Z shown on the 6th position on ---1week~26week

A~Z shown on the 6th position on ---27week~52week



D/C :

4A is the sequence of "0-9" & "A~Z"

0~9 shown on the 4th position on ---2010~2019

A~Z shown on the 4th position on ---2020~2045

A~Z shown on the 5th position on ---1week~26week

A~Z shown on the 5th position on ---27week~52week

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包裝規範

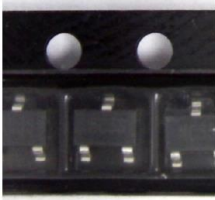
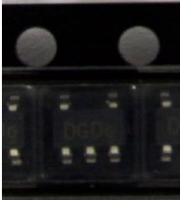
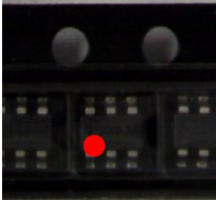
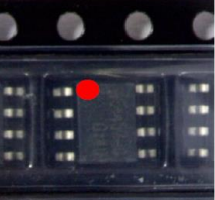
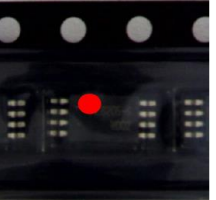
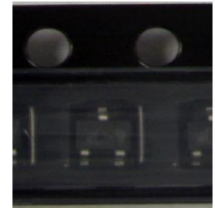
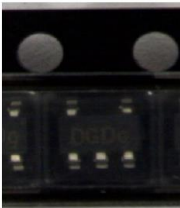
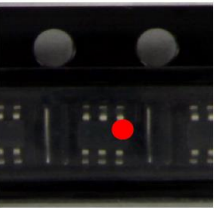
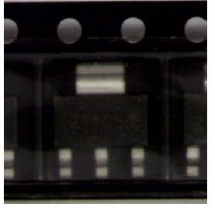
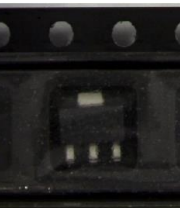
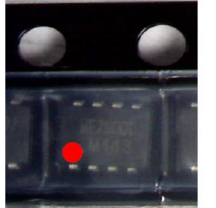
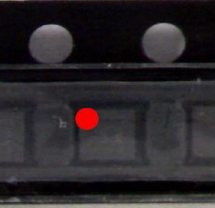
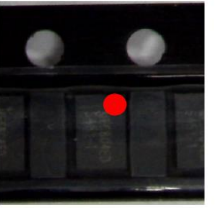
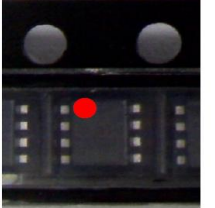
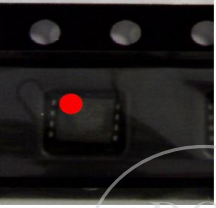
修定日期：2019 年 5 月 9 日

製作者：林 群 杰

文件編號：FM-E003

版本：E

各封裝對應捲盤、數量、零件方向

Package Type	SOT-23 SOT-小23	SOT-25	SOT-26 TSOP-6	SOP-8	TSSOP-8
PIC					
說明	單PIN朝圓孔	雙PIN朝圓孔	PIN1朝圓孔反方向	PIN1朝圓孔方向	PIN1朝圓孔方向
Reel size	7"	7"	7"	13"	13"
數量	3K	3K	3K	2.5K	3K
Package Type	SC-70 3L (SOT-323)	SC-70 5L (SOT-353)	SC-70 6L (SOT-363)	SOT-523	SOT-723
PIC					
說明	單PIN朝圓孔	雙PIN朝圓孔	PIN1朝圓孔方向	單PIN朝圓孔	單PIN朝圓孔
Reel size	7"	7"	7"	7"	7"
數量	3K	3K	3K	3K	8K
Package Type	SOT-223	SOT-89	TO-252-3L	TO-252-4L	J2928
PIC					
說明	單PIN朝圓孔	單PIN朝圓孔	PIN朝圓孔	PIN朝圓孔	PIN1朝圓孔反方向
Reel size	13"	7"	13"	13"	7"
數量	2.5K	1K	2.5K	2.5K	3K
Package Type	DFN2*2	DFN3*2	TDFN2*3	DFN3*3	DFN3.3*3.3
PIC					
說明	PIN1朝圓孔方向	PIN1朝圓孔方向	PIN1朝圓孔方向	PIN1朝圓孔方向	PIN1朝圓孔方向
Reel size	7"	7"	13"	13"	13"
數量	3K	3K	3K	3K	3K

Force mos

力士科技股份有限公司

FORCEMOS TECH.

包裝規範

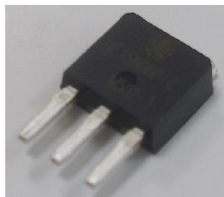
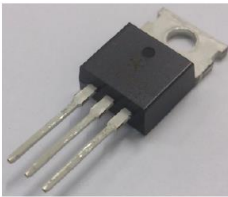
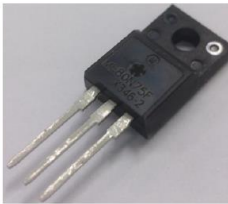
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各封裝對應捲盤、數量、零件方向

Package Type	PPAK(DFN) 5*6	TO-251	TO-220	TO-220F	SOT-563
PIC					
說明	PIN1朝圓孔方向				PIN1朝圓孔反方向
Reel size	13"	tube	tube	tube	7"
數量	3K	75 ea	50 ea	50 ea	8K

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料帶設定及標籤(Reel)



不併批 Reel 的標籤位置



併批 Reel 的標籤位置

1. 依照各封裝採用對應 Reel。
2. 料帶前空 400mm 以上(含載帶、蓋帶)，後空 160mm 以上(含載帶、蓋帶)。(依照 EIA-481)
3. 所有標籤貼於載帶圓孔相反側，Date code 不併批時，RoHS 標籤需黏貼於力士標籤正下方。
4. 不同料號不可合併。
5. 同料號不同 Date code 可合併，於 Reel 上各貼上併批標籤。

即一個 Reel 中僅可有 2 個 Date code，一個 Date code 僅可合併一次。

併批說明：Date code A 的尾數可跟 Date code B 併批；Date code B 的尾數可跟 Date code C 併批。

但 Date code A 的尾數已經 Date code B 併批，不可再跟 Date code C 併批。

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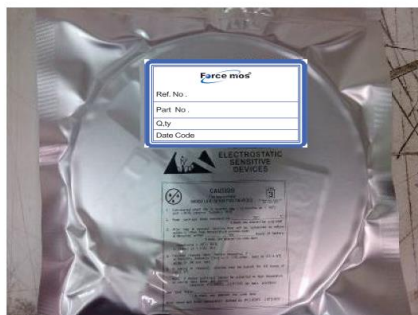
版本：E

真空包裝(Reel)



1. 產品用防靜電袋真空包裝，並抽真空密封；**MSL1 等級除外**。

MSL3 包裝(特別指定)



1. 依照MSL(MSD) 3使用防靜電鋁箔袋(真空靜電袋)=>客戶指定，擺放乾燥劑及濕度指示卡(3或6點)於袋中後，抽真空。(乾燥劑及指示卡須符合綠色產品要求)
2. 防靜電鋁箔袋上須有警示標示。
3. 防靜電鋁箔袋上需貼上產品標籤，內容格式同Reel。

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內箱包裝(Reel)



1. 捲盤(Reel) 7" 一個內箱(Box)裝 5 個 Reel；捲盤(Reel)13" 一個內箱(Box)裝 2 個(Reel)
2. 不拼批時，力士標籤貼於內箱正面右方，RoHS 標籤貼附於力士標籤左方。
3. 不同料號不可合併。
4. 同料號不同 Date code 可合併，一個 Date code 僅可並批一次，於內箱側邊正面貼上併批標籤。

外箱包裝方式(Reel)



1. 7"：一個外箱(Carton)裝 12 個內箱(Box)。13"：一個外箱(Carton)裝 6 個內箱(Box)。
2. 不足數量以空箱或填充物補足，封箱用寬度為 4.8cm 之透明膠帶。
3. 7"：內箱標籤面朝與外箱標籤朝同一方向。13"：內箱標籤面朝上，且需同一方向性。
4. 不拼批時，外箱標籤貼於外箱寬面右上方，RoHS 標籤貼附於外箱標籤左方。
5. 不同料號不可合併。
6. 同料號不同 Date code 可併箱出貨，一個外箱僅限二個 Date code，不同 Date code 的外箱標籤必須分別標示貼附，外箱標籤貼於外箱寬面右上方，依 Date code 順序逐次向下貼附，RoHS 標籤貼附於外箱標籤最上列左方。
7. 外箱標籤上貼透明膠帶，避免標籤油墨因搬運磨擦導致字跡不清。