PRODUCT/PROCESS CHANGE NOTIFICATION

PCN APM-IPC/09/4684
Notification Date 06/23/2009

IPC PRODUCTS IN SO8/14/16 LEAD NRS & STAND-ALONE

ASSEMBLY LINE using Halogen-free materials in ST Bouskoura (Morocco)

Table 1. Change Implementation Schedule

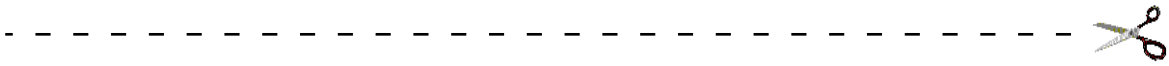
Forecasted implementation date for change	30-Jun-2009
Forecasted availabillity date of samples for customer	30-Jun-2009
Forecasted date for **STMicroelectronics** change Qualification Plan results availability	16-Jun-2009
Estimated date of changed product first shipment	19-Sep-2009

Table 2. Change Identification

Related APCN	4217
Product Identification (Product Family/Commercial Product)	as per attached list
Type of change	Package assembly material change
Reason for change	resin compound change for HF
Description of the change	In order to implement the request of the Restricted Flame Retardant products, the assembly of the halogen-free products in SO-8 lead package will be made in Bouskoura. This change will apply to the standard products made in Bouskoura as well as to the halogen-free products which are currently produced at subcontractor Amkor. The involved products can be assembled in both SOSA and NRS to achieve the maximum production flexibility.
Product Line(s) and/or Part Number(s)	See attached
Description of the Qualification Plan	See attached
Change Product Identification	by finished good code
Manufacturing Location(s)	

Table 3. List of Attachments

Customer Part numbers list	
Qualification Plan results	



Customer Acknowledgement of Receipt	**PCN APM-IPC/09/4684**
Please sign and return to STMicroelectronics Sales Office	**Notification Date 06/23/2009**

☐ Qualification Plan Denied	Name:
☐ Qualification Plan Approved	Title:
	Company:
☐ Change Denied	Date:
☐ Change Approved	Signature:

Remark

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DOCUMENT APPROVAL

Name	Function
Gattavari, Giuseppe	Division Marketing Manager
Pulicelli, Fulvio	Division Product Manager
Motta, Antonino	Division Q.A. Manager

ATTACHMENT TO PCN APM-IPC/09/4684

IPC PRODUCTS in SO8/14/16 lead NRS & STAND-ALONE ASSEMBLY LINE using Halogen-free materials in ST Bouskoura (Morocco)

WHAT:

IPC Division, in close cooperation with the Central/Corporate functions, decided to concentrate all the SO8/14/16 lead assembly activities in Bouskoura plant, in order to optimize the production performances and have the right flexibility in deliveries.
Furthermore IPC decided to convert all its SO8/14/16 lead production, complying with the latest environmental requests of the Restricted Flame Retardant resin (halogen-free).

The p/n involved are the following:

Product Line	p/n
L09603	UC2842BD1
L09603	UC2842BD1013TR
L09603	UC3842BD1
L09603	UC3842BD1013TR
L12703	UC2845BD1
L12703	UC2845BD1013TR
L12703	UC3845BD1
L12703	UC3845BD1013TR
L26403	UC2843BD1
L26403	UC2843BD1013TR
L26403	UC3843BD1
L26403	UC3843BD1013TR
L28903	UC2844BD1
L28903	UC2844BD1013TR
L28903	UC3844BD1
L28903	UC3844BD1013TR
U07301	FLEX01D
U07301	FLEX01DTR
U09303	FL28289013TR
U09303	L6561D
U09303	L6561D013TR
U09403	L6565D
U09403	L6565DTR
UE2703	L6562D
UE2703	L6562DTR
UE3801	IPC10
UE3801	IPC10TR
UE3801	L6562AD
UE3801	L6562ADTR
UE3801	L6562ATD
UE3801	L6562ATDTR

ATTACHMENT TO PCN APM-IPC/09/4684

Product line	p/n
030301	TSM103WAID
030301	TSM103WAIDT
030301	TSM103WID
030301	TSM103WIDT

WHY:

1. Concentrate SO package in Bouskoura plant
2. Comply with the latest market requirements in terms of Halogen-free products

HOW

According to the attached reliability report.
The involved products can be assembled in both SOSA and NRS to achieve the maximum production flexibility.

WHEN:

The mass production could start by September 2009 and the relevant samples are available upon request.

Q&R Project Code: **RR000709CT6017** **Q&R Project date:19-05-2009**

QUALITY & RELIABILITY EVALUATION REPORT

QUALIFICATION OF SOIC 8/14/16L NRS & STAND ALONE LINE

USING HF (HALOGEN FREE) MATERIALS

SUMITOMO G700K MOLDING COMPOUND
AND NEW GLUE ABLEBOND 8601S25

ST-BOUSKOURA(MOROCCO) B-END

Abstract:

APM/I&PC Division , decide to concentrate all the SOIC8/14/16L assembly activities in BSK plant, in order to optimize the production performance and have the right flexibility in delivery in compliance to the new ROHS procedure about the Halogen Free standard.

See HF IPC-JEDEC spec. as reference:

JAPAN:JPCA-ES-01
IEC STANDARD:61249-2-21
JEDEC J-101

Conclusion:

A full qualification exercise it was done with, Workability/Testing/C.A/Reliability evaluation positive results, to qualify the new Halogen Free products assembled on **SOIC8/14/16L NRS/STAND ALONE** line using **SUMITOMO G700K , and ABLEBOND 8601S25** as new glue type.(Both already qualified in different I&PC family products **see RR:000609CT6017- date 15-05-2009)** having as test vehicles:

***U093 (BCD1 family)**
***L264/0303 (BIP family)**
***UM06/07 (BCD6s family)**
Note:
Product pass JEDEC LEVEL _1_3@260°C
Product is classified as ECOPAK E4

Issued by
Francesco Ventura
(I&PC QA&R B-END)

Approved by
Antonino Motta
(I&PC /QA&R MNG)

Preliminary Reliability test conditions and results for *U093

Test	Test short description					
				Performed on 3# STD assy lots		
	Method	Conditions	Sample /Lots	Number of lots 1	Duration	Results Fail/SS
PC	Pre-Conditioning: Moisture sensitivity level@1					
	SAM T=0 & AFTER PRECOND	DUT SMD Preconditioning JL1 Bake 24hrs @ 125°C Soak 168hrs @ 85°C / 85%RH 3X Reflow @ 260°C	154			0/154 NO-DELAMINATION Before and after precond.
E.S :	Preconditioning JL@1 + Pressure pot					
	Condtions: 2atm		77		168hrs	0/77
E.S :	Preconditioning JL@1 + Thermal Cycle					
	Conditions:Ta=-65°C/+150°C		77		1000Cy	0/77
HTS	High Temperature Storage					
	No bias	Tamb=150°C	77		1000h	0/77

DIE FEATURES				PACKAGE FEATURES		
Die Code	:	XU093ADZ		Technical code(PKG)	:	O7
Diffusion process	:	A3 BCD1		Package name	:	SOIC 8LN
Wafer diameter	:	6”		Assembly site	:	BSK(MOROCCO)
Diffusion site	:	AMOKIO		Leadframe / substrate	:	SO8L 94x125 MILS MTX PPF
Die size	:	2590 X2060UM		Die attach	:	GLUE ABLESTIK 8601S25
Die Tick.	:	375 ± 25 µm		Molding compound	:	SUMITOMO G700K GREEN COMPOUND (HF)
Passivation	:	SiN		Wire Bonding	:	1.0 mils Au
Back finishing	:	CHROMO NICKEL GOLD		Solder balls / plating	:	Ni/Pd/Au

Preliminary Reliability test conditions and results for *L264

Test	Test short description					
	Performed on 3# STD assy lots					
	Method	Conditions	Sample /Lots	Number of lots 1	Duration	Results Fail/SS
PC	Pre-Conditioning: Moisture sensitivity level@1					
	SAM T=0 & AFTER PRECOND	DUT SMD Preconditioning JL1 Bake 24hrs @ 125°C Soak 168hrs @ 85°C / 85%RH 3X Reflow @ 260°C	77			0/77 NO-DELAMINATION Before and after precond.
E.S :	Preconditioning JL@1 + Pressure pot					
	Condtions: 2atm		77		168hrs	0/77
E.S :	Preconditioning JL@1 + Thermal Cycle					
	Conditions:Ta=-65°C/+150°C		77		100Cy	0/77
HTS	High Temperature Storage					
	No bias	Tamb=150°C	77		100h	0/77

DIE FEATURES				PACKAGE FEATURES		
Die Code	:	XL264EA6		Technical code(PKG)	:	O7
Diffusion process	:	C1 BIP		Package name	:	SOIC 8LN
Wafer diameter	:	6”		Assembly site	:	BSK(MOROCCO)
Diffusion site	:	AMOKIO		Leadframe / substrate	:	SO8L 94x125 MILS MTX PPF
Die size	:	2440 X1940UM		Die attach	:	GLUE ABLESTIK 8601S25
Die Tick.	:	280 ± 20 µm		Molding compound	:	SUMITOMO G700K GREEN COMPOUND (HF)
Passivation	:	SiN		Wire Bonding	:	1.0 mils Au
Back finishing	:	CHROMO NICKEL		Solder balls / plating	:	Ni/Pd/Au

Preliminary Reliability test conditions and results for *0303

Test	Test short description					
				Performed on 3# STD assy lots		
	Method	Conditions	Sample /Lots	Number of lots 1	Duration	Results Fail/SS
PC	Pre-Conditioning: Moisture sensitivity level@1					
	SAM T=0 & AFTER PRECOND	DUT SMD Preconditioning JL3 Bake 24hrs @ 125°C Soak 192hrs @ 30°C / 60%RH 3X Reflow @ 260°C	77			0/77 NO-DELAMINATION Before and after precond.
E.S :	Preconditioning JL@1 + Pressure pot					
	Condtions: 2atm		77		168hrs	0/77
E.S :	Preconditioning JL@1 + Thermal Cycle					
	Conditions:Ta=-65°C/+150°C		77		1000Cy	0/77
HTS	High Temperature Storage					
	No bias	Tamb=150°C	77		1000h	0/77
THB	Temperature Humidty Bias	(A2) 85°C/85%RH, Vin=32V	45		1000h	0/45

DIE FEATURES				PACKAGE FEATURES		
Die Code	:	X0303AC6		Technical code(PKG)	:	O7
Diffusion process	:	C6 BIP		Package name	:	SOIC 8LN
Wafer diameter	:	6”		Assembly site	:	BSK(MOROCCO)
Diffusion site	:	AMOKIO		Leadframe / substrate	:	SO8L 94x125 MILS MTX PPF
Die size	:	18900 X 2120UM		Die attach	:	GLUE ABLESTIK 8601S25
Die Tick.	:	375 ± 25 µm		Molding compound	:	SUMITOMO G700K GREEN COMPOUND (HF)
Passivation	:	SiN-POLYAMMIDE		Wire Bonding	:	1.0 mils Au
Back finishing	:	ROW SILICON		Solder balls / plating	:	Ni/Pd/Au

Preliminary Reliability test conditions and results for *UM06

Test	Test short description					
	Performed on 3# STD assy lots					
	Method	Conditions	Sample /Lots	Number of lots 1	Duration	Results Fail/SS
PC	Pre-Conditioning: Moisture sensitivity level@1					
	SAM T=0 & AFTER PRECOND	DUT SMD Preconditioning JL1 Bake 24hrs @ 125°C Soak 168hrs @ 85°C / 85%RH 3X Reflow @ 260°C	77			0/77 NO-DELAMINATION Before and after precond.
E.S :	Preconditioning JL@1 + Pressure pot					
	Condtions: 2atm		77		168hrs	0/77
E.S :	Preconditioning JL@1 + Thermal Cycle					
	Conditions:Ta=-65°C/+150°C		77		1000Cy	0/77
HTS	High Temperature Storage					
	No bias	Tamb=150°C	77		1000h	0/77

DIE FEATURES				PACKAGE FEATURES		
Die Code	:	XUM06AEP		Technical code(PKG)	:	O7
Diffusion process	:	2L BCD6s		Package name	:	SOIC 8LN
Wafer diameter	:	6”		Assembly site	:	BSK(MOROCCO)
Diffusion site	:	AMOKIO		Leadframe / substrate	:	SO8L 85x85 MILS MTX PPF
Die size	:	1311 X 1242UM		Die attach	:	GLUE ABLESTIK 8601S25
Die Tick.	:	375 ± 25 µm		Molding compound	:	SUMITOMO G700K GREEN COMPOUND (HF)
Passivation	:	USG-SiON-PIX		Wire Bonding	:	1.0 mils Au
Back finishing	:	CHROMO NICKEL GOLD		Solder balls / plating	:	Ni/Pd/Au

ATTACHMENT 1: RELIABILITY TEST DESCRIPTION(for reference)

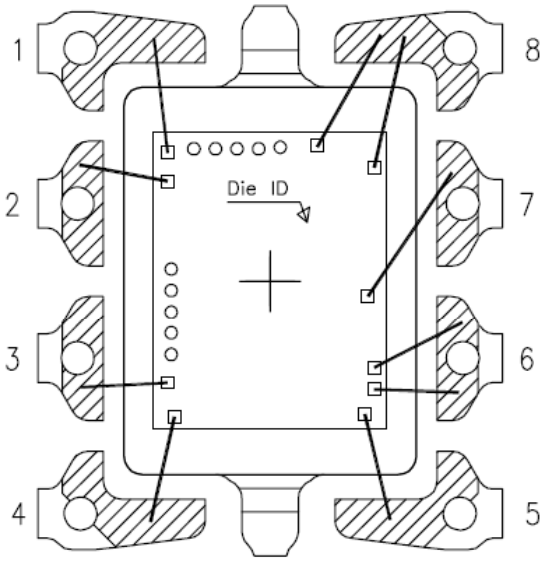
TEST NAME	DESCRIPTION	PURPOSE
JLn: Jedec Level n surface mounting simulation	The device is submitted to a typical temperature profile used for surface mounting, after a controlled moisture absorption.	As stand-alone test: to investigate the level of moisture sensitivity. As preconditioning before other reliability tests: to verify that the surface mounting stress does not impact on the subsequent reliability performance. The typical failure modes are "pop corn" effect and delamination.
TCT: Temperature Cycles Test	The device is submitted to cycled temperature excursions, between a hot and a cold chamber in air atmosphere.	To investigate failure modes related to the thermo-mechanical stress induced by the different thermal expansion of the materials interacting in the die-package system. Typical failure modes are linked to metal displacement, dielectric cracking, moulding compound delamination, wire-bonds failure, die-attach layer degradation.
PPT: Pressure Pot Test	The device is stored in saturated steam, at fixed and controlled conditions of pressure and temperature.	To investigate corrosion phenomena affecting die or package materials, related to chemical contamination and package hermeticity.
HTS: High Temperature Storage	The device is stored in unbiased condition at the max. temperature allowed by the package materials, sometimes higher than the max. operative temperature.	To investigate the failure mechanisms activated by high temperature, typically wire-bonds solder joint ageing, data retention faults, metal stress-voiding.
THB: Temperature Humidity Bias Test	The device is biased in static configuration minimizing its internal power dissipation, and stored at controlled conditions of ambient temperature and relative humidity.	To investigate failure mechanisms activated in the die-package environment by electrical field and wet conditions. Typical failure mechanisms are electro-chemical corrosion and surface effects related to the moulding compound.

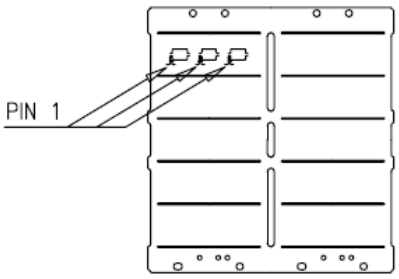
DOCUMENT 7862867 REVISION A CONTROLLED DOCUMENT (Check latest revision) DATE 09-JUN-2005 page: 1/1

BONDING DIAGRAM FOR LINE : U093 PACKAGE : 07

FRAME PAD : .094 x .125 inch / 2,388 x 3,175 mm

SCALE 1mm



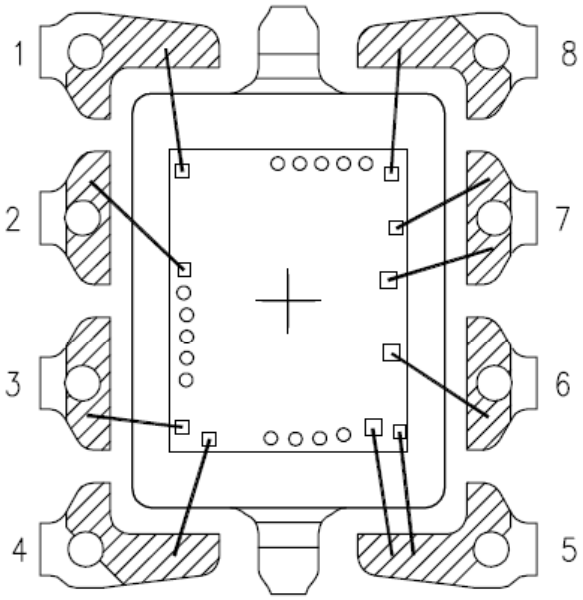


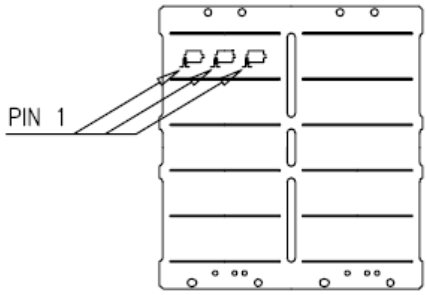
BONDING DIAGRAM FOR LINE : L764

PACKAGE : 07

FRAME PAD : .094 x .125 inch / 2,388 x 3,175 mm

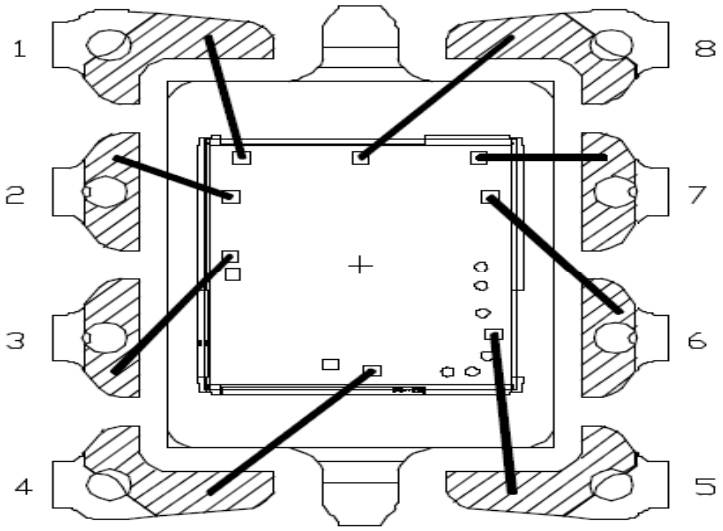
SCALE
1mm

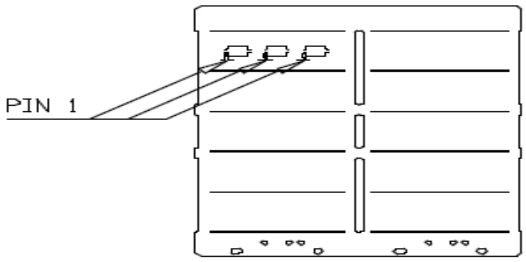




BONDING DIAGRAM FOR LINE : 0303 PACKAGE : D 7

FRAME PAD : .094 x .125 inch / 2,388 x 3,175 mm DIE SIZE : inch / Dimensions in the bsa

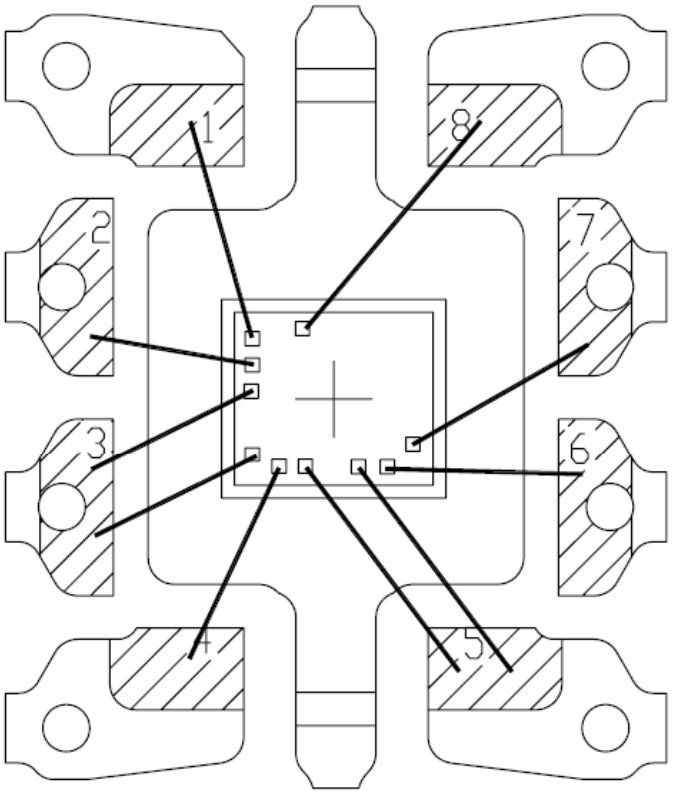




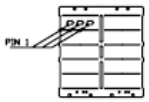
SOP 8L MATRIX
BLANK BOND. DIAG. REF. : 0108482

MOUNT & BOND DIAGRAM FOR B507*UM06AEP

FRAME PAD : 85 x 85 mils / 2,159 x 2,159 mm



SCALE : 1 mm

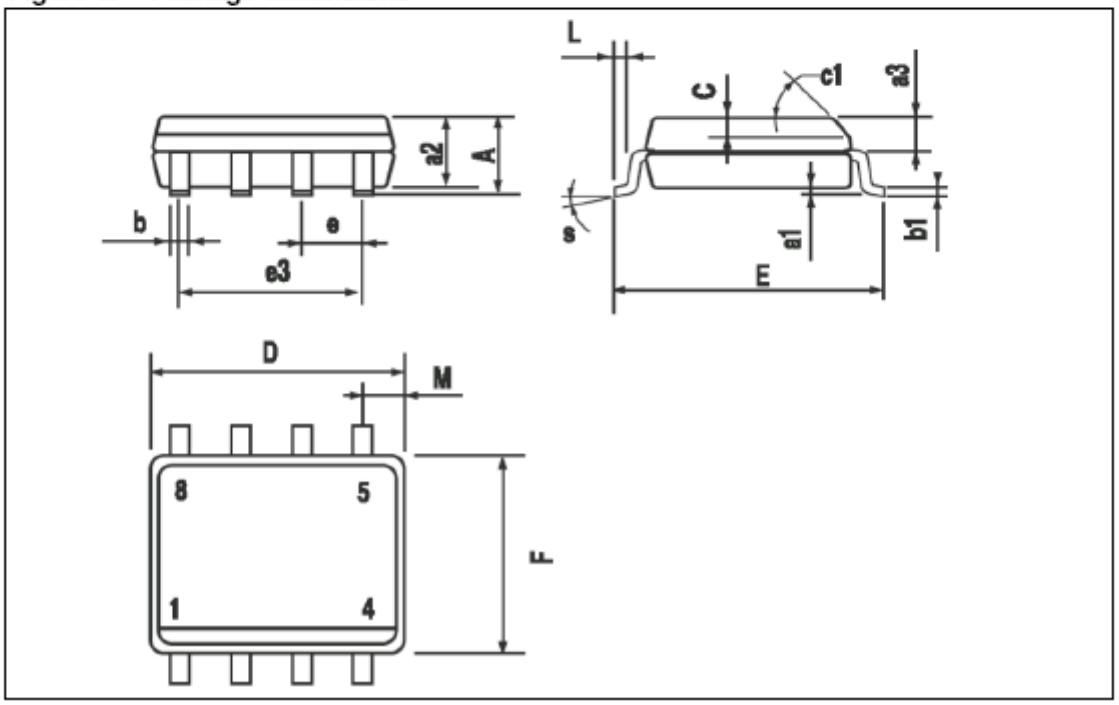


E.S.D. PROGRAM IS MANDATORY

Table 9. SO-8 mechanical data

Dim.	mm			inch		
	Min	Typ	Max	Min	Typ	Max
A			1.75			0.068
a1	0.1		0.25	0.003		0.009
a2			1.65			0.064
a3	0.65		0.85	0.025		0.033
b	0.35		0.48	0.013		0.018
b1	0.19		0.25	0.007		0.010
C	0.25		0.5	0.010		0.019
c1	45 (typ.)					
D	4.8		5.0	0.188		0.196
E	5.8		6.2	0.228		0.244
e		1.27			0.050	
e3		3.81			0.150	
F	3.8		4.0	0.14		0.157
L	0.4		1.27	0.015		0.050
M			0.6			0.023
S	8º (max.)					

Figure 9. Package dimensions



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Oggetto:
Autore: st
Parole chiave:
Commenti:
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Numero revisione: 34
Data ultimo salvataggio: 6/3/2009 5:04:00 PM
Autore ultimo salvataggio: francesco ventura
Tempo totale modifica 223 minuti
Data ultima stampa: 6/3/2009 5:09:00 PM
Come da ultima stampa completa
Numero pagine: 11
Numero parole: 1,342 (circa)
Numero caratteri: 7,654 (circa)

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