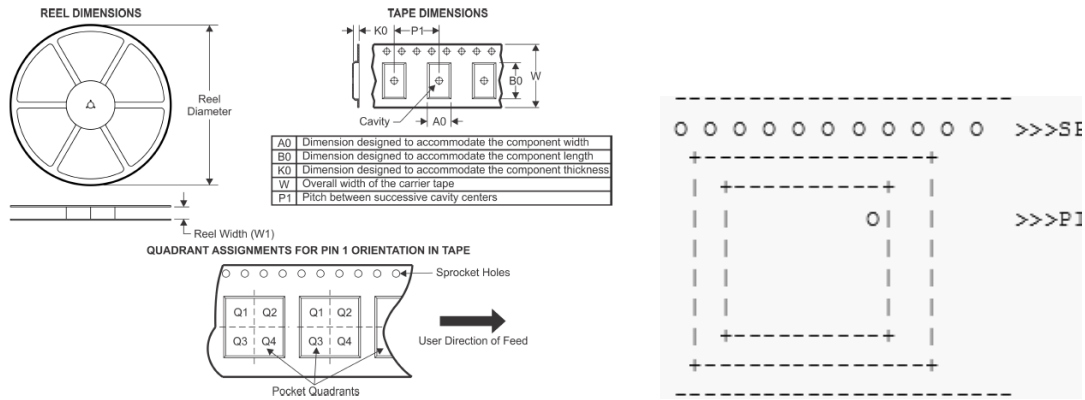


物料编码 Part number	供应 商名 称 Suppli er Name	物料信息 Info of material				最小包装信息 Info of inner packing					
		包装 方式 Packin g type	料带宽度 Width of tape (MM)	开孔 方式 Feedin g hole type	物料步 距 Feedin g step (MM)	内 装 数 量 Qty	毛重 Gross weight (KG)	包装 件 长 Leng th (MM)	包 装 件 宽 Wid th (M M)	包 装 件 高 Hig ht (M M)	包装 材质 Mate rial
TPS22961 DNYR	TI	tape reel	12		8	30 00		370	355	55	PIZZA BOX

TAPE AND REEL INFORMATION



Marking picture	vendor Name (供应商名称)	Part No. (器件型号)	Marking Rule (丝印规则)
961A1 TI YMS LLLL G4	TI	TPS22961DNYR	丝印 961A1 代表型号， 通过识别本体丝印 961A1 可判定物料正确 the marking " 961A1" represents the device name, by identifying units marking 961A1 correctly to determine device

TI Part	*拆分部位名称 Disassembly Unit/component description	*均质材料名称 Homogeneous Material Name.	物质名称 Substance Name	*CAS No.	*物质重量 Substance Mass. (mg)	Content Rate(%) (均 质材料中的含 量)
TPS22961DNYR	Bond Wire	Aluminum and Its Alloys	Aluminum	7429-90-5	0.000001	0.000446
		Copper and Its Alloys	Copper	7440-50-8	0.224056	99.995537
		Copper and Its Alloys	Iron	7439-89-6	0.000001	0.000446
		Other Inorganic Materials	Sulfur	7704-34-9	0.000001	0.000446
		Other Nonferrous Metals and Alloys	Calcium	7440-70-2	0.000004	0.001785
		Precious Metals	Silver	7440-22-4	0.000003	0.001339
	Die Attach Adhesive	Other Inorganic Materials	Aluminum Oxide	1344-28-1	0.069425	29.999827
		Other Inorganic Materials	Silica	7631-86-9	0.010414	4.500082
		Thermoplastics	Epoxy	85954-11-6	0.151579	65.500091
	Lead Frame	Copper and Its Alloys	Copper	7440-50-8	15.661712	97.52
		Copper and Its Alloys	Iron	7439-89-6	0.36938	2.3
		Copper and Its Alloys	Phosphorus	7723-14-0	0.004818	0.03
		Zinc and Its Alloys	Zinc	7440-66-6	0.02409	0.15
	Lead Frame Plating	Nickel and Its Alloys	Nickel	7440-02-0	0.466088	95.12
		Precious Metals	Gold	7440-57-5	0.003822	0.78
		Precious Metals	Palladium	7440-05-3	0.02009	4.1
	Mold Compound	Other Inorganic Materials	Fused Silica	60676-86-0	6.853418	90.500007
		Other Plastics and Rubber	Carbon Black	1333-86-4	0.037864	0.499998
		Thermoplastics	Epoxy	85954-11-6	0.681555	8.999996
	Semiconductor Device	Ceramics / Glass	Doped Silicon	7440-21-3	1.402803	100

类别 Category	Basic Information		Result
	器件型号 Device Part Number		TPS22961DNYR
晶圆信息 Wafer related Information	晶圆代工厂信息，工艺类别和工艺节点 Wafer fab information, process type and node		MH8
	晶圆工艺的成熟度 wafer process was qualified and released to production or not.		Mature
	有产品已经使用了该晶圆工艺 products have been applied with this wafer process?		Yes
	客户已使用的同晶圆族器件（同工艺技术、同工厂） Is there any part from the same wafer process family have been used in customer?		YES
	晶圆工艺制程能力（SPC） Wafer Process Capability(SPC)		Meet SPC Spec
	是否存在 Cpk<1.33 的制程监控参数？如有，请列出该监控参数及其改进计划。 Is there any wafer process CPK<1.33? If yes, please list it and provide the improvement plan.		NO
	芯片 ID Chip ID:Do you have chip ID or die ID for this device?		NO
封装信息 Assembly related Information	封装代工厂，封装类型 Assembly Factory, Package type		UTAC QFN
	封装尺寸（长*宽*高） Package Size (Length*Width*Height)		3x3x0.8mm
	焊球/引脚间距 Ball/Lead pitch		0.65MM
	客户已使用的同封装族器件（同封装技术、同封装厂） Is there any part from the same package family have been used in customer? If yes, please list the part number.		YES
	键合工艺 Wire Bonding	键合线成分 Wire composition	Cu

	(Only for Wire Bonding Package)	键合线直径 Wire diameter	0.8mil
	封装工艺制程能力（SPC） Assembly Process Capability(SPC)		Meet spc spec
	是否存在 Cpk<1.33 的制程监控参数？如有，请列出该监控参数及其改进计划。 Is there any assembly process CPK<1.33? If yes, please list it and provide the improvement plan.		NO
器件基本规格 General Specification	工作温度范围 Range of Operation Temperature (Ta, Tj or Tc)		-40~85C
	存储温度范围 Storage Temperature range		-65 ~ 150C
	存储期限 Storage limit		1years at customer side
	最大结温 Max.Junctioin Temperature		125C
	长期失效率 IFR, Intrinsic Failure Rate, FIT		2.1FIT@60%CL
	潮湿敏感等级 MSL, Moisture Sensitive Level		MSL 2
	封装热阻 Theta ja, jc and jb	Θja	44.6 °C/W
		Θjc	44.4 °C/W
		Θjb	17.6°C/W
	ESD (HBM、CDM, for all pin)	HBM	2000
		CDM	1000
	抗闩锁能力 Latch-Up (At max. Ambient Temperature)		Meet qual test requirement
测试相关 Testing related	Test Factory		UTAC
可靠性认证 Reliability Qualification	新工艺或新设计器件的可靠性或寿命极限测试数据 If the chip is new process or new design, And some Lifetime limit test(Test to fail or beyond JEDEC standard) had been down. Please specify the test condition and result detailly.		NO

	晶圆可靠性认证报告 Wafer reliability Qualification Report, including: TDDB, HCI, NBTI, PBTI, EM, SM .etc	YES
	封装可靠性认证报告 Package Qualification Report, including: PC, THB, HAST, UHAST, HTSL, TC, BLTC, DT, Bend, PDT, PVT .etc	See TI.com qual report
	器件可靠性认证报告 Device Qualification Report, including: ELFR, HTOL, LTOL, ASER, SSER, ESD-HBM, ESD-CDM, LU .etc	See TI.com qual report
	器件量产后应该进行可靠性试验监控，请提供最新的可靠性监控报告 The device should be done reliability monitoring. Please provide the latest Reliability Monitoring Report, including: PC, THB, HAST, UHAST, TC, HTSL, HTOL .etc	ORT test based on package
	性能报告 Characterization report, follow JESD86	Refer to datasheet

Check Items for TPS22961DNYR			Result
引脚/端子材料 Materials of Lead / termination	表面镀层 Surface plating/ coating material	材料成分 Composition	NIPDAU
		厚度(μm) Thickness(μm)	Confidential

	引脚基体材料 Basic metal	Cu
元器件封装 Package	封装遵循的标准 Package standard	JEDEC
	元器件重量 Weight of component (g)	0.026
	元件重量/贴片吸取面积是否 $\leq 0.06\text{g/mm}^2$ Weight/ available P&P area $\leq 0.06\text{g/mm}^2$	是 Yes
		如果不满足，请给出具体值： If not, give the actual data:
	共面度 coplanarity	整个回流过程中共面度（三个引脚、焊端及其以上适用/mm） coplanarity during reflow process
	1 脚标识 Mark point	refer to datasheet
		器件上表面 MARK 信息是否有方向性标志点（例如“1”引脚标志）？ Is there any Mark point in the top side of component?
		是 Yes
		器件表面方向性标志点是否唯一？(如果不唯一请附图说明标志点与引脚对应关系。) Is the mark point sole? (if not, pls. give the relationship between mark and terminals)
	方向性器件在 AOI 上实际确认，需要设备能识别器件极性 component orientation can be Identified by mounting machine or AOI?	是 Yes
		器件资料是否明确标注引脚位置号？ Is there any specific location number of terminals in the component specification?
		是 Yes
	密封性 seal	器件底部/焊端附近是否存在助焊剂渗入导致器件功能不良的孔或缝隙？ Is there any hole or gap in package body, flux enter package inside form the hole or gap, resulting in function fail
		无孔或缝隙，密实性好 NO

	器件本体的裸露非绝缘体（非焊接位置的金属/半导体等） exposed Non-insulator on component body	非焊接位置，是否存在裸露非绝缘体？裸露非绝缘体与邻近焊接引脚是否为同一网络属性？ Whether there exist non-insulator at no soldering position. Are non-insulator and adjacent soldering pin the same circuit?	NO
		所有裸露非绝缘体的尺寸和位置在器件规格书中是否图示标注清楚？ Have Dimension and Position of non-insulator been indicated in component spec.	是 Yes
器件环保要求 requirements of environment compliant	下面所列物质的重量比是否满足 RoHS 要求？（请参考此调查表的“sheet7 RoHS Compliant”） 铅、镉、汞、六价铬、多溴联苯、多溴二苯醚 Are matters RoHS compliant listed below? (please refer to "sheet7 RoHS Compliant" in this file) Lead, Cd, Hg, Cr VI, PBB, PBDE Lead-free		是 Yes
	是否无卤 Halogen-free		是 Yes
元器件存储、包装、湿敏等级 Storage, packing MSD	相对湿度（%） Relative humidity (%)		≥20%& ≤70%
			其它 other (please specify):
	温度（℃） Temperature (℃)		≥-10℃& ≤35℃
			其它 other (please specify):
	可存储期限（月） Maximum storage time (month)		Follow MSL rating rules Allowed 1 year stored at customer side
		表贴元器件包装类型 Packaging type	
			其它 other (please specify):
	器件 pin1 脚标识在包装中的位置（见右图 2） Position of component pin 1 in packing（see right figure 2）		Figure2
料带或 Tray 盘高度（H），见右图 3 Packaging height(H),see right figure 3		1.1	

	包装宽度 (W) ,见右图 3 Packaging width(W),see right figure 3	12mm
	卷带器件料带步距:P1 component pitch:P1	8mm
	防静电包装 ESD packaging	是 Yes
	能否满足：料带包装中侧翻率 $\leq 0.05\%$ Rollover rate $\leq 0.05\%$ in packing	是 Yes
	能否满足：卷带包装，器件在料槽旋转角度是否小于 10° Maximum component rotation for punched $\leq 10^\circ$	是 Yes
	能否承受：托盘包装 125℃/24 小时的烘烤条件 tray packing Baking conditions: 125℃@24h	是 Yes
	能否承受：卷带包装 40℃/192 小时的烘烤条件 reel tape packing Baking conditions: 40℃@192h	是 Yes
	卷带包装是否符合 EIA 481 标准? can reel tape packing meet EIA 481 standard?	EIA
	潮湿敏感等级 MSL	2
	受潮后的烘烤要求是否满足 J-STD-033? Baking requirement if moisture meets J-STD-033?	是 Yes
	潮敏等级在 2 级及 2 级以上，潮敏防护必须包含：潮敏指示卡、干燥剂、潮敏等级标识等 Moisture sensitive level at level 2 and level 2 above, moisture sensitive protection must include: moisture sensitive indicator card, desiccant, moisture sensitive grade logo	是 Yes
组装工艺 Assembly process	能否满足：烙铁空载实测温度 400℃，每个引脚焊接时间 ≥ 5 秒。或者热风枪加热，器件本体温度达到 340℃以上时间 $\geq 10s$ 。按照上述方法实现焊接后，器件外观要无损伤，电气性能要满足要求 manual soldering conditions: soldering iron tip temperature 400℃，time $\geq 5s$ 。 Or hot gun temperature 340℃，time $\geq 10s$	是 Yes
	是否满足：能承受的回流焊接次数 ≥ 3 次 Maximum soldering times ≥ 3	是 Yes

	针对表贴器件，其耐温性是否满足 J-STD-020D 要求？（重点关注耐温性和回流曲线分级两部分，即表 4-1，4-2 和 5-2，请参考此调查表“sheet6 J-STD-020D”） Can heat resistance of SMT components meet JSTD020D. (should focus on the classification of temperature and reflow profiles, that is table 4-1, 4-2 and 5-2, please refer to sheet6 J-STD-020D in this file)	是 Yes
	是否满足：表贴器件中心能承受的贴片压力$\geq$ 2N Maximum pick-and-place pressure (N)	是 Yes
	器件的焊接加工和设计要求是否已经全部写入器件规格书？ Whether the welding process and design requirements of component have all written to the component specifications	是 Yes
	器件规格书中提供的焊盘及钢网设计（包括钢网厚度）是否为强制要求？ Whether Pad & stencil design as Mandatory requirements in component spec?	推荐 recommended
	器件对回流焊升温斜率和降温斜率是否有特殊要求？客户采用 J-STD-002D 标准 Whether the device has special requirements for the reflow temperature ramp-up rata and ramp-down rata? Customer follow J-STD-002 standard	无 No
	器件规格书中有无其他强制要求？ Are there other mandatory requirements in component spec?	无 No
测试报告 Test Report	可焊性测试报告 Solder ability test report	Yes
	工艺板级可靠性测试报告 Board level reliability test report	No

Qualification Results (qual id20131001-94603)

Data Displayed as: Number of lots / Total sample size / Total failed



Type	Test Name / Condition	Duration	Qual Device: TPS22961DNYR
HAST	Biased HAST, 130C/85%RH	96 Hours	3/231/0
AC	Autoclave 121C	96hours	3/231/0
TC	Temperature Cycle, -65/150C	500 Cycles	3/231/0
HTSL	High Temp Storage Bake 170C	420 Hours	3/230/0
HTOL	Life Test, 155C	240 Hours	3/240/0
WBP	Bond Pull	Wires	3/228/0
SD	Surface Mount Solderability	Pb Free	3/75/0
HBM	ESD - HBM	1000 V	1/3/0
CDM	ESD - CDM	250 V	1/3/0
LU	Latch-up	(per JESD78)	1/6/0
ED	Electrical Characterization	Per Datasheet Parameters	Pass