

JEDEC SOLID STATE
PRODUCT OUTLINE
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THIS *REGISTERED OUTLINE* HAS BEEN PREPARED BY THE JEDEC JC-11 COMMITTEE
AND REFLECTS A PRODUCT WITH ANTICIPATED USAGE IN THE ELECTRONICS INDUSTRY;
CHANGES ARE LIKELY TO OCCUR.

TITLE PLASTIC QUAD FLAT
PACKAGE, GULL WING & J-LEAD,
0.65MM PITCH

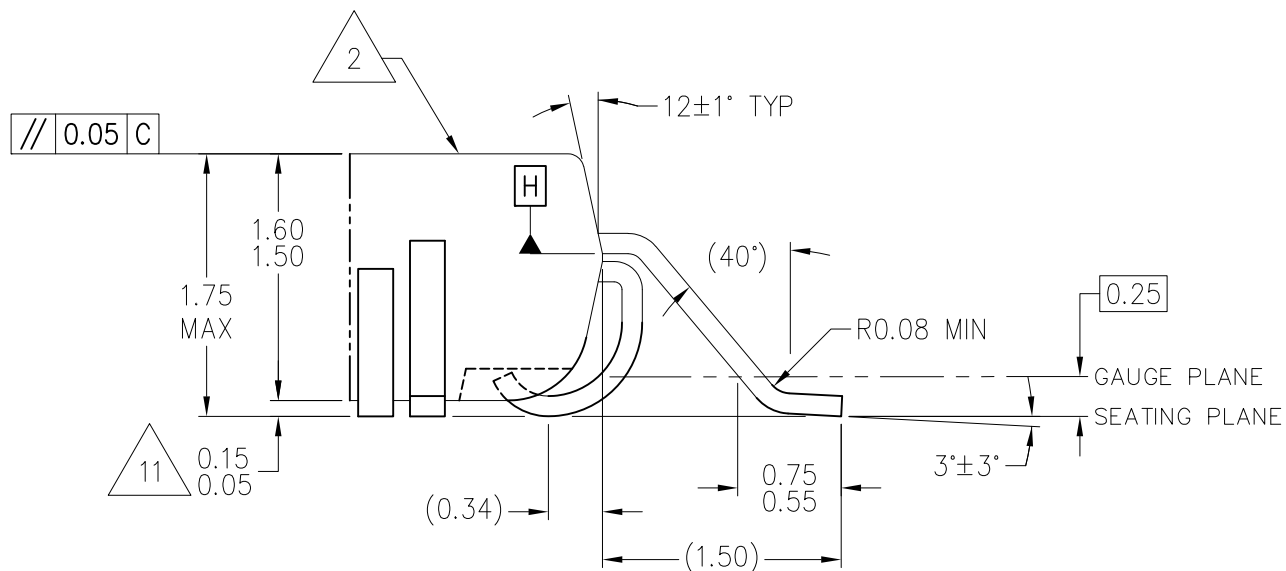
PACKAGE DESIGNATOR
PQFP- E#_I0p65 - R...

ITEM
MO-355

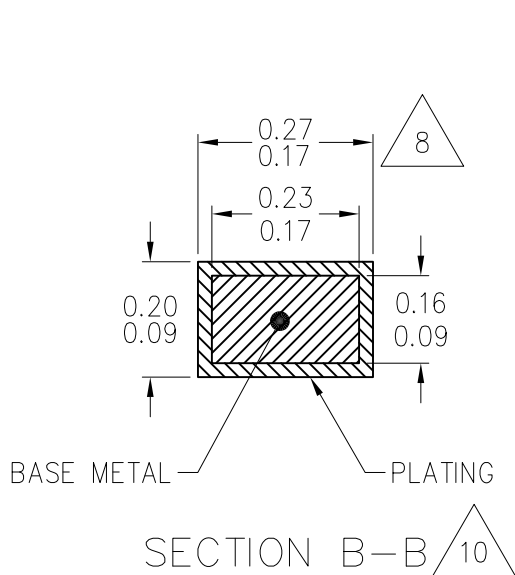
ISSUE
A

DATE
APR 2023

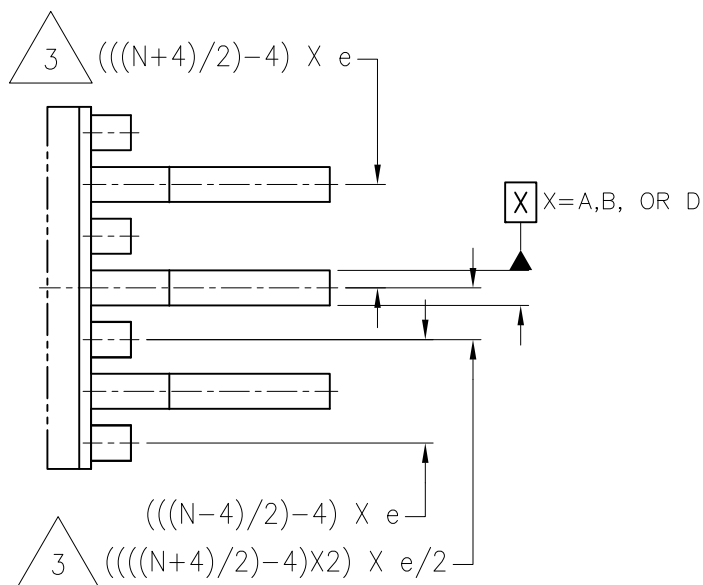
SHEET
1 OF 9



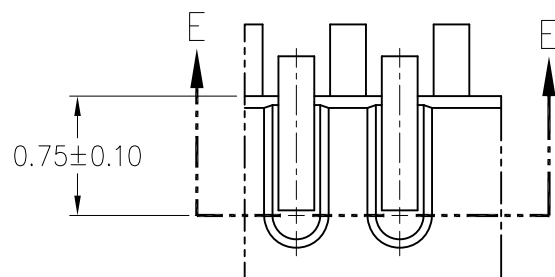
DETAIL A



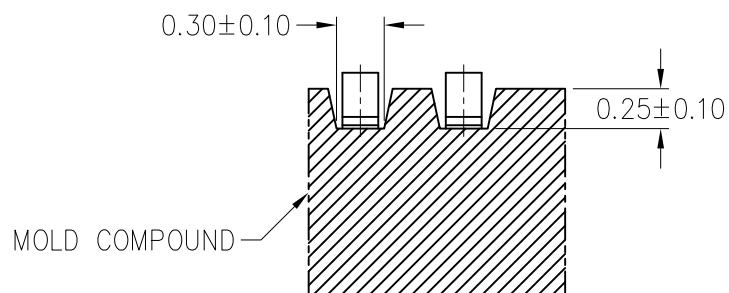
SECTION B-B



DETAIL C



DETAIL D



SECTION E-E

TITLE PLASTIC QUAD FLAT
PACKAGE. GULL WING & J-LEAD,
0.65MM PITCH

PACKAGE DESIGNATOR
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TABLE 1

SUMMARY TABLE			
BODY SIZE	INLINE PITCH	LEAD COUNT	VARIATIONS
5.00 X 5.00	0.65	36	A
7.00 X 7.00	0.65	60	B
10.00 X 10.00	0.65	100	C
12.00 X 12.00	0.65	124	D
14.00 X 14.00	0.65	148	E
16.00 X 16.00	0.65	172	F
20.00 X 20.00	0.65	220	G
24.00 X 24.00	0.65	268	H
NOTES			
REF	11-1028		
ISSUE	A		

TABLE 2

VARIATIONS												
SYMBOL	A			NOTE	B			NOTE	C			NOTE
	SQUARE				SQUARE				SQUARE			
	MIN	NOM	MAX		MIN	NOM	MAX		MIN	NOM	MAX	
X	8 BSC			4	10 BSC			4	13 BSC			4
X1	5 BSC			5,2	7 BSC			5,2	10 BSC			5,2
e	0.65 BSC				0.65 BSC				0.65 BSC			
Y	8 BSC			4	10 BSC			4	13 BSC			4
Y1	5 BSC			5,2	7 BSC			5,2	10 BSC			5,2
N	36				60				100			
NOTE	1, 7, 14				1, 7, 14				1, 7, 14			
REF	11–1028				11–1028				11–1028			
ISSUE	A				A				A			

TABLE 2 CONTINUED

VARIATIONS												
SYMBOL	D			NOTE	E			NOTE	F			NOTE
	SQUARE				SQUARE				SQUARE			
	MIN.	NOM.	MAX.		MIN.	NOM.	MAX.		MIN.	NOM.	MAX.	
X	15 BSC			4	17 BSC			4	19 BSC			4
X1	12 BSC			5,2	14 BSC			5,2	16 BSC			5,2
e	0.65 BSC				0.65 BSC				0.65 BSC			
Y	15 BSC			4	17 BSC			4	19 BSC			4
Y1	12 BSC			5,2	14 BSC			5,2	16 BSC			5,2
N	124				148				172			
NOTE	1, 7, 14				1, 7, 14				1, 7, 14			
REF	11–1028				11–1028				11–1028			
ISSUE	A				A				A			

TABLE 2 CONTINUED

VARIATIONS								
SYMBOL	G			NOTE	H			NOTE
	SQUARE				SQUARE			
	MIN.	NOM.	MAX.		MIN.	NOM.	MAX.	
X	23 BSC			4	27 BSC			4
X1	20 BSC			5,2	24 BSC			5,2
e	0.65 BSC				0.65 BSC			
Y	23 BSC			4	27 BSC			4
Y1	20 BSC			5,2	24 BSC			5,2
N	220				268			
NOTE	1, 7, 14				1, 7, 14			
REF	11–1028				11–1028			
ISSUE	A				A			

NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M-1994.

2 THE TOP PACKAGE BODY SIZE MAY BE SMALLER THAN THE BOTTOM PACKAGE SIZE BY AS MUCH AS 0.15mm.

3 DATUMS A-B AND D TO BE DETERMINED AT DATUM PLANE H.

4 TO BE DETERMINED AT SEATING DATUM PLANE C.

5 DIMENSION X1 AND Y1 DO NOT INCLUDE MOLD PROTRUSIONS. ALLOWABLE PROTRUSION IS 0.15mm PER SIDE. THIS DIMENSIONS ARE MAXIMUM PLASTIC BODY SIZE DIMENSIONS INCLUDING MOLD MISMATCH.

6 DETAILS OF PIN 1 IDENTIFIER ARE OPTIONAL BUT MUST BE LOCATED WITHIN THE ZONE INDICATED.

7. ALL DIMENSIONS ARE IN MILLIMETERS.

8 THIS DIMENSION DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL NOT CAUSE THE LEAD WIDTH TO EXCEED THE MAXIMUM DIMENSION BY MORE THAN 0.08mm. DAMBAR CANNOT BE LOCATED ON THE LOWER RADIUS OR THE FOOT. MINIMUM SPACE BETWEEN PROTRUSION AND AN ADJACENT LEAD IS 0.07mm.

9 EXACT SHAPE OF EACH CORNER IS OPTIONAL.

10 THESE DIMENSIONS APPLY TO THE FLAT SECTION OF THE LEAD BETWEEN 0.10mm AND 0.25mm FROM THE LEAD TIP.

11 THIS DIMENSION IS DEFINED AS THE DISTANCE FROM THE SEATING PLANE TO THE LOWEST POINT ON THE PACKAGE BODY.

12 THESE DIMENSIONS SHOW THE MINIMUM ALLOWED FOR THE OPTIONAL EXPOSED HEAT SLUG. THE MAXIMUM DIMENSION ALLOWED IS EQUAL TO THE PACKAGE BODY SIZE (X1 & Y1). HOWEVER, THE SIZE OF THE EXPOSED HEAT SLUG IS VARIABLE DEPENDING ON THE DEVICE FUNCTION (DIE SIZE). END USERS SHOULD VERIFY THE ACTUAL SIZE OF EITHER TOP OR BOTTOM EXPOSED THERMAL PAD FOR SPECIFIC DEVICE APPLICATION.

13 THE OPTIONAL EXPOSED HEATSLUG IS COINCIDENT WITH THE TOP OR BOTTOM SIDE OF THE PACKAGE AND NOT ALLOWED TO PROTRUDE BEYOND THAT SURFACE.

14 THE MINIMUM DIMENSION VALUE FOR THE HEAT SLUG DOWN MAY BE 0.00mm TO ACCOMMODATE REFLOW PROCESSES AND GLUING OF THE HEAT SLUG DIRECTLY TO THE PRINTED CIRCUIT BOARD (PCB). THE MAXIMUM VALUES FOR THIS DIMENSION REMAINS THE SAME FOR EITHER HEAT SLUG UP OR HEAT SLUG DOWN.

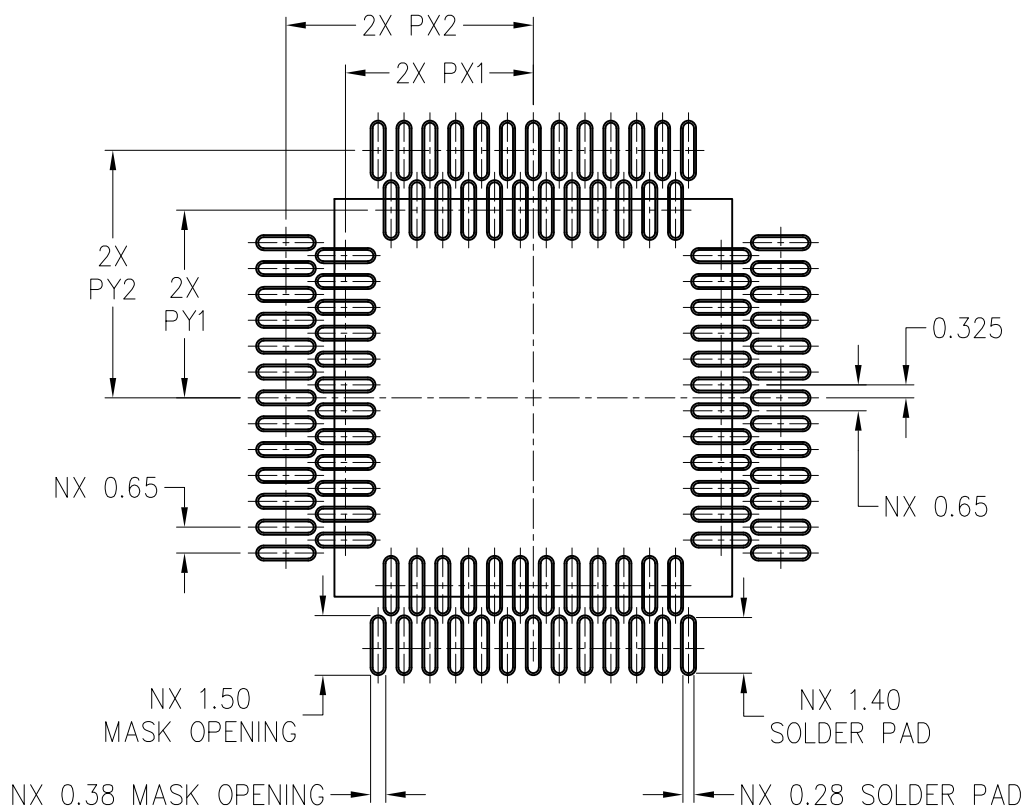
TITLE	PACKAGE DESIGNATOR	ITEM	ISSUE	DATE	SHEET
PLASTIC QUAD FLAT PACKAGE. GULL WING & J-LEAD, 0.65MM PITCH	PQFP- E#_I0p65 - R...	MO-355	A	APR 2023	7 OF 9

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VARIOUS COMPANIES HAVE ISSUED PATENTS AND RELATED PATENT APPLICATIONS THAT MAY APPLY TO THIS REGISTRATION. IF THE CURRENT ISSUE PATENTS OR LATER PATENTS RESULTING FROM RELATED APPLICATIONS DO APPLY, THESE COMPANIES INTEND TO COMPLY WITH THE JEDEC PATENT POLICY AND LICENSE UNDER REASONABLE TERMS AND CONDITIONS THAT ARE DEMONSTRABLY FREE OF ANY UNFAIR DISCRIMINATION. REFERENCED PATENTS ARE AS FOLLOWS.

NXP	PATENT NO.: US8,901,721B1
NXP	PATENT NO.: US8,525,311B2
NXP	PATENT NO.: US8,859,339B2

16. REFERENCE PCB FOOTPRINT.



10 X 10 PACKAGE TERMINAL PATTERN
SHOWN FOR REFERENCE

TABLE 3

SUMMARY TABLE				
BODY SIZE	PX1	PX2	PY1	PY2
5.00 X 5.00	2.22	3.72	2.22	3.72
7.00 X 7.00	3.22	4.72	3.22	4.72
10.00 X 10.00	4.72	6.22	4.72	6.22
12.00 X 12.00	5.72	7.22	5.72	7.22
14.00 X 14.00	6.72	8.22	6.72	8.22
16.00 X 16.00	7.72	9.22	7.72	9.22
20.00 X 20.00	9.72	11.22	9.72	11.22
24.00 X 24.00	11.72	13.22	11.72	13.22
NOTES				
REF	11-1028			
ISSUE	A			

STP (3D) FILE RECORD
3D FILE NAMES MAY EXCEED LENGTH REQUIREMENTS FOR SOME SOFTWARE TOOLS.

STP FILE NAME	DATE	ITEM NUMBER
MO-355A_PQFP-E36_I0p65-R5p0x5p0Z1p75	APR 2023	11-1028
MO-355A_PQFP-E60_I0p65-R7p0x7p0Z1p75	APR 2023	11-1028
MO-355A_PQFP-E100_I0p65-R10p0x10p0Z1p75	APR 2023	11-1028
MO-355A_PQFP-E124_I0p65-R12p0x12p0Z1p75	APR 2023	11-1028
MO-355A_PQFP-E148_I0p65-R14p0x14p0Z1p75	APR 2023	11-1028
MO-355A_PQFP-E172_I0p65-R16p0x16p0Z1p75	APR 2023	11-1028
MO-355A_PQFP-E220_I0p65-R20p0x20p0Z1p75	APR 2023	11-1028
MO-355A_PQFP-E268_I0p65-R24p0x24p0Z1p75	APR 2023	11-1028

TITLE	PLASTIC QUAD FLAT PACKAGE. GULL WING & J-LEAD, 0.65MM PITCH	PACKAGE DESIGNATOR	PQFP-E#_I0p65-R...	ITEM	MO-355	ISSUE	A	DATE	APR 2023	SHEET	i
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TASK GROUP CONTRIBUTORS

NXP SEMICONDUCTORS
ORACLE
INFINEON
KIOXIA CORPORATION
MICRON TECHNOLOGY INC.
SAMSUNG SEMICONDUCTOR

TITLE	PLASTIC QUAD FLAT PACKAGE. GULL WING & J-LEAD, 0.65MM PITCH	PACKAGE DESIGNATOR	ITEM	ISSUE	DATE	SHEET
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CHANGE RECORD

IF THE CHANGE INVOLVES ANY WORDS ADDED OR DELETED (EXCLUDING DELETION OF ACCIDENTALLY REPEATED WORDS), THE CHANGE IS TO BE INCLUDED BELOW. PUNCTUATION CHANGES MAY OR MAY NOT BE INCLUDED.

INITIAL ISSUE: A	DATE: APRIL 2023	ITEM NUMBER: 11-1028
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CHANGE RECORD HISTORY:

ISSUE: -	DATE: -	ITEM NUMBER: -
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LOCATION:	CHANGED FROM:	CHANGED TO:

TITLE	PLASTIC QUAD FLAT PACKAGE. GULL WING & J-LEAD, 0.65MM PITCH	PACKAGE DESIGNATOR	PQFP- E#_I0p65 - R...	ITEM	MO-355	ISSUE	A	DATE	APR 2023	SHEET	iii
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