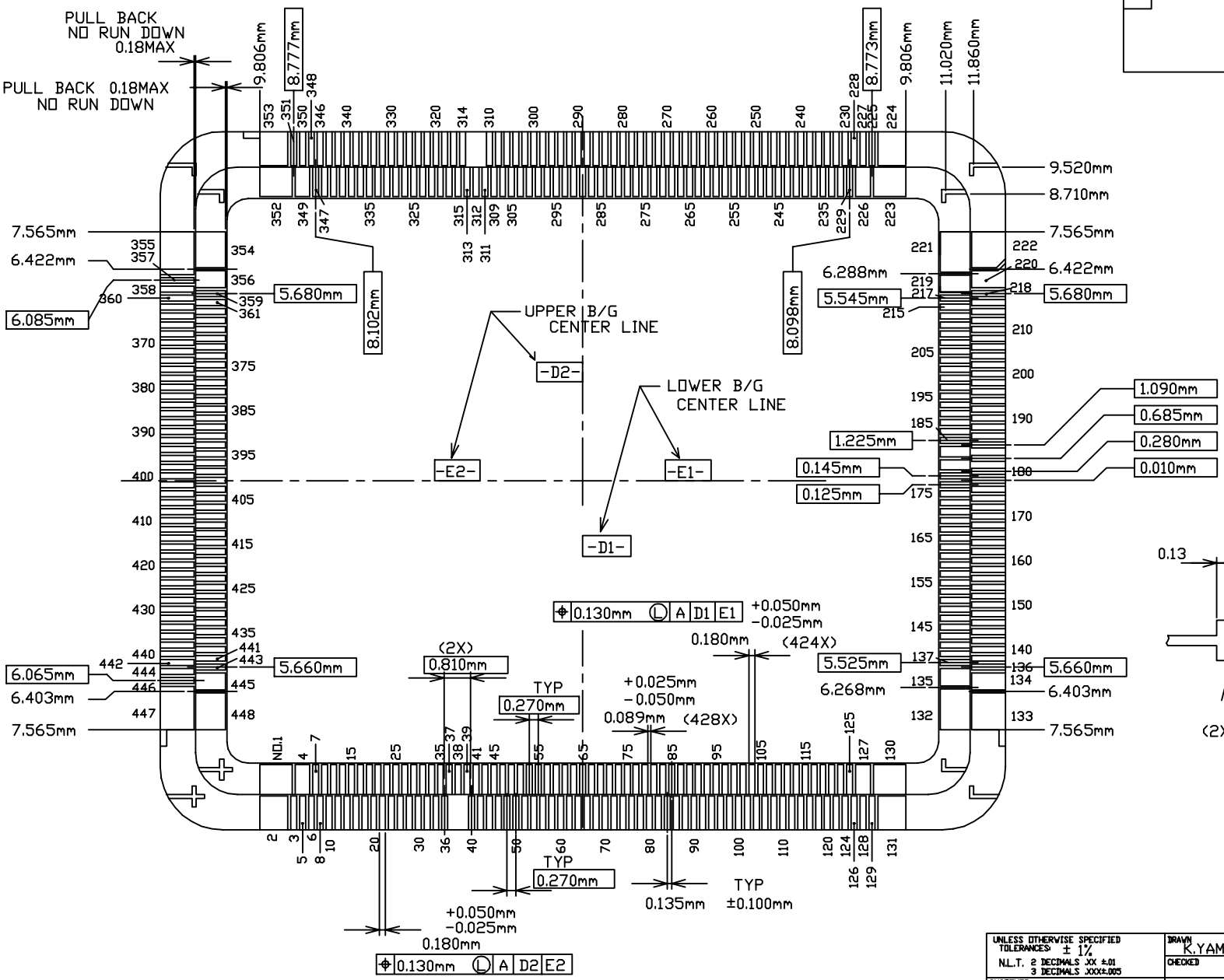
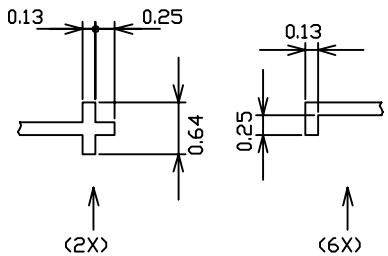
NTK TECHNICAL CERAMICS

LATEST REVISION'S DISCRIPTION





TARGET MARK DETAIL

Rev.	Description	Date
Ø	NEW DRAWING	AUG-25-1993

UNLESS OTHERWISE SPECIFIED TOLERANCES: ± 1%
N.L.T. 2 DECIMALS .XX ±.01
3 DECIMALS .XXX±.005

CUSTOMER: AMS

DWG NO.

DRAWN: K.YAMANOUCHI

CHECKED

APPROVED

UNIT: mm INCH

SCALE

NTK TECHNICAL CERAMICS
NGK SPARK PLUG CO.,LTD

TITLE: B/G PADS DETAIL

DRAW NO.: IPKA4F4-8744E

SIZE: A-2 (C)

MODIFIED DWG NO.

PART NO.

SHEET 2 OF 3

NTK TECHNICAL CERAMICS

LATEST REVISION'S DISCRIPTION

CONNECTION TABLE (PIN ~ PAD)

PAD	PIN	PAD	PIN	PAD	PIN	PAD	PIN	PAD	PIN	PAD	PIN	PAD	PIN	PAD	PIN	PAD	PIN	PAD	PIN	PAD	PIN	PAD	PIN	PAD	PIN
1	VSS	36	G13	71	A21	106	C31	141	G39	176	W35	211	AL39	246	AR31	281	AW23	316	AU13	351	AN5	386	AD6	421	VSS
2	VCC	37	VSS	72	G21	107	VSS	142	K36	177	VCC	212	AK36	247	VCC	282	AT22	317	VCC	352	VCC	387	AC1	422	R5
3	H6	38	A7	73	A23	108	G29	143	H38	178	AA39	213	AM38	248	AU31	283	AW21	318	AN15	353	VSS	388	AC5	423	VCC
4	VCC	39	B8	74	C23	109	A37	144	L35	179	*P0	214	AL37	249	VSS	284	AR21	319	VSS	354	VSS	389	VSS	424	P4
5	G5	40	C13	75	VCC	110	E31	145	VSS	180	W37	215	AN39	250	AN29	285	AV20	320	AR13	355	VCC	390	AC7	425	N1
6	E5	41	A9	76	D22	111	B38	146	M34	181	VSSP	216	AJ33	251	AW35	286	AN21	321	AW5	356	VCC	391	VCC	426	N3
7	VSS	42	G15	77	VSS	112	G31	147	VCC	182	AA35	217	VSS	252	AR29	287	VCC	322	AN13	357	AM6	392	AC3	427	M2
8	G7	43	A11	78	E23	113	C37	148	L37	183	VCCP	218	AL35	253	AW33	288	AU21	323	AW3	358	AL7	393	AA1	428	R7
9	G1	44	E15	79	B24	114	C33	149	J39	184	AC37	219	VCC	254	AT30	289	VSS	324	AU11	359	VSS	394	AB4	429	L1
10	C5	45	VCC	80	G23	115	VCC	150	N33	185	*P1	220	VSS	255	AV32	290	AU19	325	AV2	360	AL5	395	VSS	430	L3
11	G3	46	D14	81	A25	116	F32	151	L39	186	AC35	221	VSS	256	AU29	291	AW19	326	AP12	361	VCC	396	AA5	431	VSS
12	F8	47	VSS	82	C25	117	VSS	152	N35	187	VSS	222	VCC	257	VCC	292	AP20	327	VCC	362	AJ7	397	VCC	432	N5
13	E1	48	C15	83	A27	118	E33	153	M38	188	AC33	223	VSS	258	AP28	293	AW17	328	AR11	363	AM2	398	AA7	433	VCC
14	E7	49	B12	84	F24	119	C39	154	R33	189	VCC	224	VCC	259	VSS	294	AR19	329	VSS	364	AK4	399	VSS	434	M6
15	VCC	50	F16	85	VCC	120	G33	155	VSS	190	AE37	225	AL33	260	AR27	295	AV16	330	AT10	365	AL3	400	AA3	435	J1
16	G9	51	A13	86	E25	121	E37	156	N37	191	AC39	226	VCC	261	AW31	296	AN19	331	AU3	366	AJ5	401	Y2	436	N7
17	VSS	52	E17	87	VSS	122	C35	157	VCC	192	AD34	227	AM34	262	AN27	297	VCC	332	AU9	367	AL1	402	W3	437	J3
18	C7	53	A15	88	D26	123	E39	158	P36	193	AD38	228	AN37	263	AW29	298	AU17	333	AU1	368	AH6	403	VCC	438	L5
19	E3	54	G17	89	B28	124	E35	159	N39	194	AE35	229	VSS	264	AU27	299	VSS	334	AN11	369	VSS	404	Y6	439	H2
20	E9	55	VCC	90	C27	125	VCC	160	R35	195	AE39	230	AN35	265	AV28	300	AT18	335	AR3	370	AG7	405	VSS	440	L7
21	C1	56	C17	91	A29	126	G35	161	R39	196	AF36	231	AR39	266	AN25	301	AW15	336	AU7	371	VCC	406	W5	441	VSS
22	C9	57	VSS	92	G25	127	VSS	162	T34	197	VSS	232	AR35	267	VCC	302	AR17	337	VCC	372	AJ3	407	VCC	442	K4
23	C3	58	D18	93	A31	128	H34	163	T38	198	AG37	233	AR37	268	AR25	303	AW13	338	AR9	373	AJ1	408	W7	443	VCC
24	G11	59	B16	94	E27	129	J33	164	R37	199	VCC	234	AN33	269	VSS	304	AN17	339	VSS	374	AG5	409	W1	444	J5
25	VCC	60	E19	95	VCC	130	VCC	165	VSS	200	AE33	235	AU39	270	AT26	305	AV12	340	AP8	375	AH2	410	U3	445	VSS
26	E11	61	A17	96	G27	131	VSS	166	U33	201	AG39	236	AU35	271	AW27	306	AU15	341	AR1	376	AG3	411	VSS	446	J7
27	VSS	62	G19	97	VSS	132	VCC	167	VCC	202	AG35	237	VCC	272	AU25	307	VCC	342	AN9	377	AG1	412	V4	447	VSS
28	D10	63	A19	98	C29	133	VSS	168	U35	203	AH38	238	AR33	273	AW25	308	AP16	343	AN3	378	AE7	413	VCC	448	VCC
29	B2	64	C19	99	B32	134	VCC	169	U39	204	AG33	239	VSS	274	AP24	309	VSS	344	AU5	379	VSS	414	U5		
30	C11	65	VCC	100	F28	135	VSS	170	V36	205	AJ39	240	AP32	275	AV24	310	AR15	345	AN1	380	AE5	415	U1		
31	A3	66	C21	101	A33	136	J35	171	W39	206	AJ37	241	AU37	276	AR23	311	AW11	346	AR7	381	VCC	416	U7		
32	F12	67	VSS	102	E29	137	VCC	172	U37	207	VSS	242	AN31	277	VCC	312	AW9	347	VCC	382	AF4	417	T2		
33	A5	68	F20	103	A35	138	L33	173	AA37	208	AH34	243	AV38	278	AN23	313	AV8	348	AR5	383	AE1	418	R3		
34	E13	69	B20	104	D30	139	G37	174	W33	209	VCC	244	AU33	279	VSS	314	AT14	349	VSS	384	AE3	419	R1		
35	VCC	70	E21	105	VCC	140	J37	175	VSS	210	AJ35	245	AW37	280	AU23	315	AW7	350	AN7	385	AD2	420	T6		

	PIN
VSS	B4,B14,B22,B30,B36,D2,D6,D12,D20,D28,D34 D38,F4,F6,F10,F18,F26,F34,F36,K2,K34,M4 M36,P6,P38,V2,V34,Y4,Y36,AB6,AB36,AB38 AF2,AF34,AH4,AH36,AK6,AK38,AP4,AP6,AP14 AP22,AP30,AP34,AP36,AT2,AT6,AT12,AT20 AT28,AT34,AT38,AV4,AV10,AV18,AV26,AV36
VCC	A39,B6,B10,B18,B26,B34,D4,D8,D16,D24,D32 D36,F2,F14,F22,F30,F38,H4,H36,K6,K38,P2 P34,T4,T36,V6,V38,Y38,AB2,AB34,AD4,AD36 AF6,AF38,AK2,AK34,AM4,AM36,AP2,AP10,AP18 AP26,AP38,AT4,AT8,AT16,AT24,AT32,AT36 AV6,AV14,AV22,AV30,AV34,AW1,AW39
VSSP	Y34
VCCP	AA33

NOTE: *P0 --- BOTTOM CAPACITOR PAD P0

*P1 --- BOTTOM CAPACITOR PAD P1

Rev.	Description	Date
Ø	NEW DRAWING	AUG-25-1993

UNLESS OTHERWISE SPECIFIED TOLERANCES: ± 1%
N.L.T. 2 DECIMALS XX ±.01
3 DECIMALS XXX±.005

CUSTOMER: AMS

DWG NO.

MODIFIED DWG NO.

DRAWN: T.HIEI

CHECKED

APPROVED

UNIT: MM INCH

SCALE

NTK TECHNICAL CERAMICS
NGK SPARK PLUG CO.,LTD

TITLE: CONNECTION TABLE

DRAW NO.: IPKA4F4-8744E

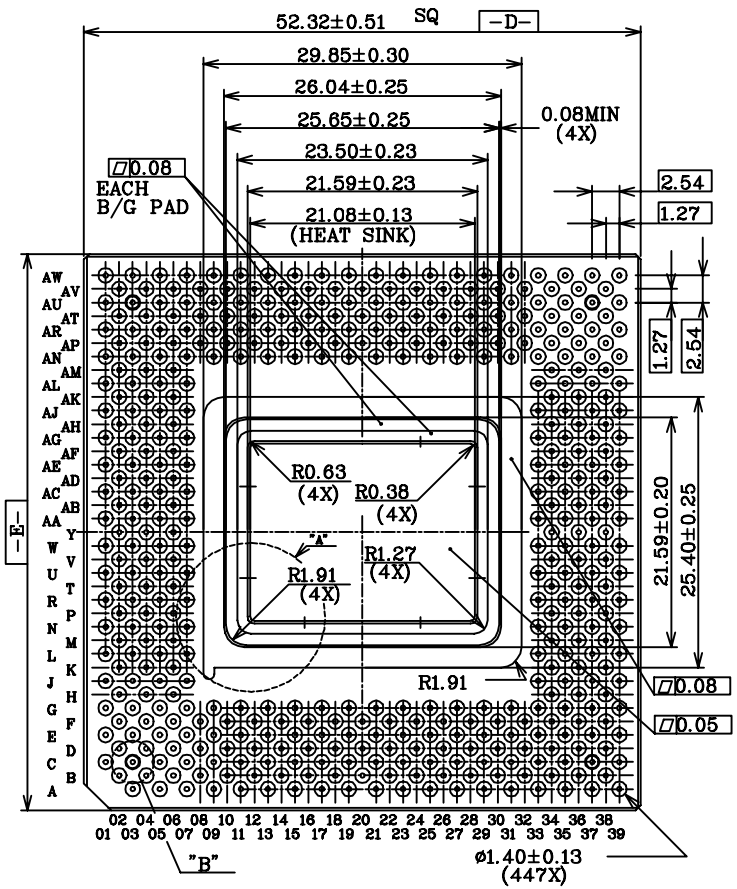
SIZE: A-2 (C)

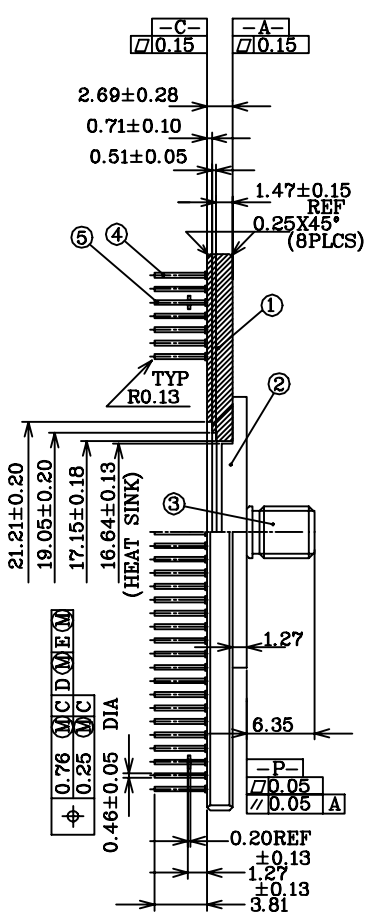
PART NO.

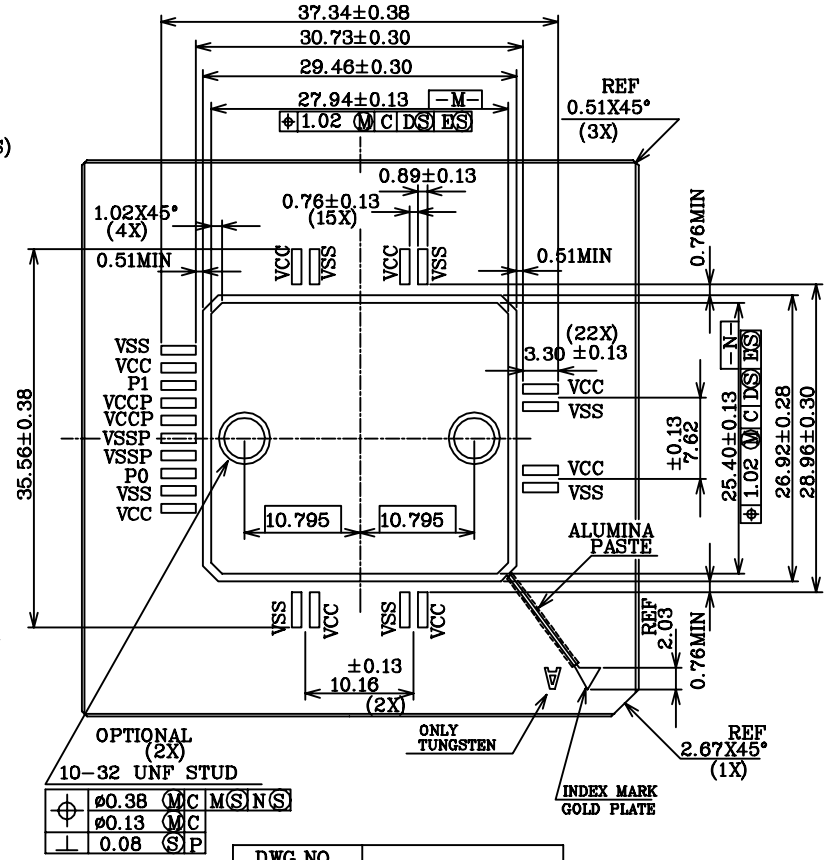
SHEET 3 OF 3

NTK TECHNICAL CERAMICS

LATEST REVISION'S DISCRIPTION



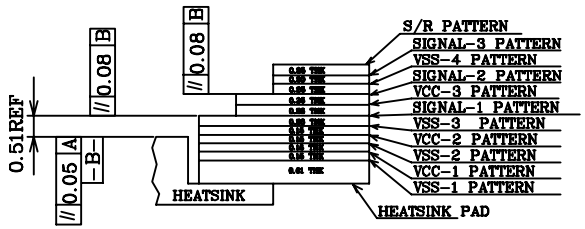


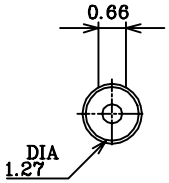


NOTES:

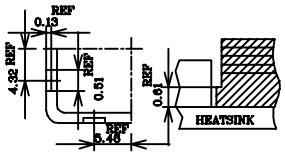
1. GOLD PLATE 3.0? METER MIN OVER 2.5? METER MIN NICKEL.
2. HEAT SINK TO BE ELECTRICALLY ISOLATED FROM ANY PINS .
3. SEAL RING TO BE ELECTRICALLY CONNECTED TO VSS.

DWG.NO	
-8744E	WITHOUT STUD
———	WITH STUD (2X)





DETAIL "B"
(4X)



DETAIL "A"
(4X)

Item	Name	Material	Description
5	STOPPER PIN	KOVAR	
4	PIN	KOVAR	
3	STUD	KOVAR	
2	HEAT SINK	CW-10	
1	CERAMIC	BLACK CERAMIC	

Rev.	Description	Date
ø	NEW DRAWING	AUG-25-1993

UNLESS OTHERWISE SPECIFIED TOLERANCES: ? 1%
N.L.T. 2 DECIMALS .XX ?.01
3 DECIMALS .XXX?.005

CUSTOMER: AMS

DWG NO.

DRAWN: K.YAMANOUCHI

CHECKED

APPROVED

UNIT: INCH

SCALE

NTK TECHNICAL CERAMICS
NGK SPARK PLUG CO.,LTD

TITLE: 447 PIN GRID ARRAY

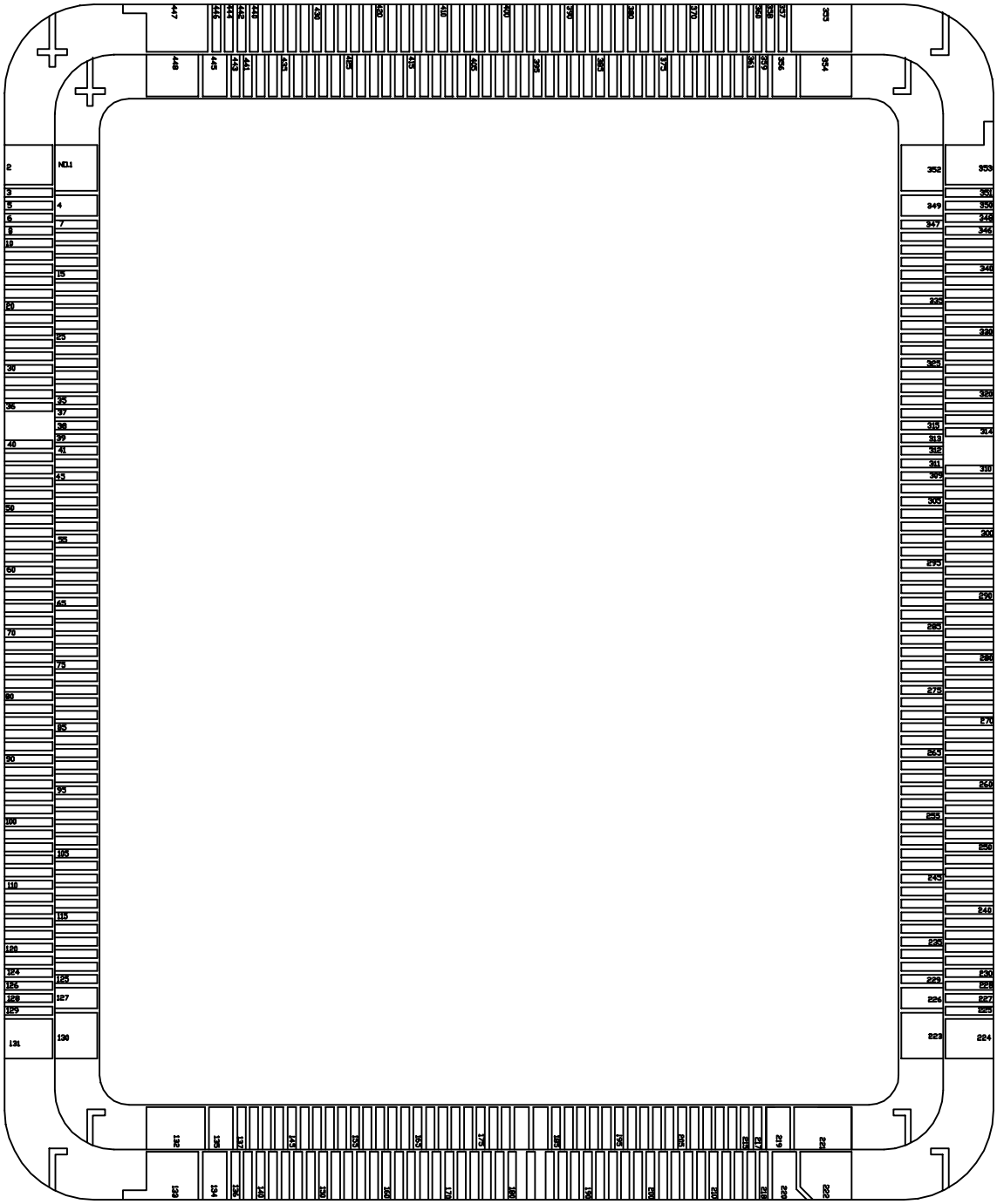
DRAW NO.: IPKA4F4-8744E

SIZE: A-2 (C)

MODIFIED DWG NO.

PART NO.

SHEET 1 OF 3



A) DEVICE-,DRAWING NUMBER:

B) ASSEMBLY CODE: NKA-X

C) SCALE: 10 / 1

D) DIE SIZE:

E) DIE ATTACH PAD SIZE: 675X850 mil

F) PACKAGE TYPE/BODY SIZE: CERAMIC PGA 447 LD / (52.32 mm)

G) BONDPAD PITCH (MIN):

H) BOND PAD SIZE (MIN):

I) WIRE SIZE:

J) WAFERTHICKNESS:

K) CAVITY (UP OR DOWN): UP

L) REMARKS:

QA - APPROVAL:

REV.:

SHEET OF