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प्लाज्मा अनुसंधान संस्थान
INSTITUTE FOR PLASMA RESEARCH
परमाणु ऊर्जा विभाग, भारत सरकार का एक सहायता प्राप्त
संस्थान



An Aided Institute of Department of Atomic Energy,
Government of India

इन्दिरा पुल के पास, भट, गांधीनगर - 382 428 भारत
दूरभाष: (079) 2396 2020/2021/2028
फैक्स: 91-079-23962277
वेब: www.ipr.res.in

NEAR INDIRA BRIDGE, BHAT
DIST. GANDHINAGAR - 382 428 (INDIA)
Phone: (079) 2396 2020/2021/2028
Fax : 91-079-23962277
Web : www.ipr.res.in

ENQUIRY

ENQUIRY NO : IPR/EQL/18-19/301
Date : 05-12-2018

Due on : 10-01-2019 by 1:00 PM IST

Please send your offer in sealed envelope specifying Enquiry No, Date & Due Date, ALONG WITH your credentials for the following items:

Important Note:

Please note that e-mail quotations are not acceptable however you may send your queries (if any) to localpurchase@ipr.res.in

Please ensure your sealed quotation reaches this office not later than above mentioned due date and time.

Kindly go through the following documents properly before quoting which are available on the IPR web portal i.e., http://www.ipr.res.in/documents/tender_terms.html / attached herewith.

- 1) Instructions to the bidders & Terms and conditions (refer Form No: **IPR-LP-01.V4**)
- 2) Bidding format

GST for Goods and Services (IGST/CGST/SGST TAX BENEFITS): Please refer **clause no: 8** of Form No: **IPR-LP-01.V4**

QUOTATION SHOULD BE ADDRESSED TO PURCHASE OFFICER ONLY

Sr No	Description	Quantity
1	4 layer layout Design ,Fabrication ,Component soldering and enclosure assembling for 24 channel bolometer upgraded electronics as per the specification attached	2.0 Nos.

Note: TDS as per CGST Act: As per provisions of section No. 51 of the CGST Act 2017, TDS @2% (IGST 2% or CGST 1% and SGST 1%) will be deducted while making payment to the suppliers where total value of orders/contracts/work orders exceeds Rs. 2.5 lakhs, in the event of order in Indian Rupees. Necessary TDS Certificate will be issued to the supplier after TDS deduction.

FIM VALUE Rs.

Encl: As per attachment.

Sd/-

Mr. D. Ramesh
Purchase Officer-II

Work Title: 4 layer layout Design ,Fabrication ,Component soldering and enclosure assembling for 24 channel bolometer upgraded electronics

Brief description of the work:

To design PCB from the given schematic diagram, Fabrication of PCBs, Soldering of components, PCB mounting, Assembling and wiring in 2U /3U Aluminum enclosure. The sample schematic of a single channel will be provided for estimation of cost along with inquiry. The complete schematic will be provided by IPR after placing order. The components to be mounted will be provided as free issue material after fabrication of the PCBs. Cost estimation break up is given in annexure-4. Quote accordingly. Terms and conditions and instructions for vendor are given in annexure-3

The scope of the work is divided in to the following five tasks

- a) Artwork/Layout design of the circuit from the given schematic
 - 4 Layer PCB design. Inner layers are dedicated to Ground and power planes.
 - After basic placement, the vendor should interact with end user of IPR for approving the placement and layout as soft copies through email.
 - Maximum size of the Design/PCB can be 400 mm x 300 mm
- b) 4 Layer PCB fabrication of the same Artwork: Quality standard:- Circuit System India Limited, Gandhinagar or equivalent.
 - No. of Layers : 4 Layer
 - PCB Thickness : 2.4 mm +/-0.1mm
 - Dimension : 400 mm x 300 mm
 - Material : Nema Glass epoxy (Fr4-135tg)
 - Base copper : 70 micron
 - Finish Copper : 90 micron
 - Surface Finish : SMOBC(HAL) with PISM SM&LP
 - Other specifications regarding PCB fabrication is given in Annexure-1.
- c) Components mounting and Soldering
 - All the required components will be provided by IPR after placing order.
 - Other specifications regarding PCB fabrication is given in Annexure-2.
- d) Enclosure purchase
 - The vendor should provide suitable 2U/3U enclosure.
- e) Enclosure Assembling
 - Assembling and wiring of PCB in the enclosure.
 - Input output Connectors should be provided by IPR as FIM.

	Solvent Resist Test on Solder Mask (Use IPA)	NO ATTACK	
17	PTH plating thickness should be minimum 25micron.		
18	PCB size tolerance should be +/- 0.2mm maximum		
19	Only Gerber files will be provided for PCB fabrication for the mentioned jobs		
20	Warpage should not be more than 0.2%, otherwise rejected.		
21	Manufacturer should provide the following reports of the final PCB 1)BBT report. 2) QC and QA report		

Annexure -2

Work scope (c): Compliance Form For Components mounting and Soldering

Sr no.	IPR Requirement	Vendor's Specification
A).	<u>Scope of work for soldering on PCB</u>	
1	Placement of SMD resistor, capacitor and IC's of different package like 0805 ,6032 ,SOIC, QFP,TSSOP and through hole components are required.	
2	SMD components are to be hand soldered	
3	Clear identification of component is required	
4	Bending of components (may be required somewhere)	
5	Placing the component on both side of PCB	
6	Soldering of components on both side of PCB	
7	Removing extra soldering material and cleaning of PCB.	
8	Electro polishing required	
9	Filling of PTH with soldering material.	
10	Point to point checking of the connections will have to do on the board for ensuring that there is no dry soldering or open connection and all the points have been soldered as per the schematic provided with final order copy.	

Annexure -4

Cost estimation break-up

Sr. No.	Work description	Charges (Amount in Rs.)	Remarks
1	4 Layer Artwork/Layout design of the circuit from the given schematic Size: 400 mm x 300 mm ,Qty=1		
2	4 Layer PCB fabrication from Gerber file. (According to the specifications given in Annexure-1) ,Qty=2		
3	Components Soldering and Assembling , ,Qty=2		
4	Enclosure cost and its assembling and wiring cost, ,Qty=2		
5	Other charges if any		
6	Taxes		
Total			

FIM LIST



Item Quantity Reference Part

1 392 CD1,CD2,CD3,CD4,CD5,CD6,CD7,CD8,CD9,CD10,CD11,CD12,CD13,CD14,CD15,CD16,CD17,CD18,CD19,CD20,CD21,CD22,CD23,CD24,CD25,CD26,CD27,CD28,CD29,CD30,CD31,CD32,CD33,CD34,CD35,CD36,CD37,CD38,CD39,CD40,CD41,CD42,CD43,CD44,CD45,CD46,CD47,CD48,CD49,CD50,CD51,CD52,CD53,CD54,CD55,CD56,CD57,CD58,CD59,CD60,CD61,CD62,CD63,CD64,CD65,CD66,CD67,CD68,CD69,CD70,CD71,CD72,CD73,CD74,CD75,CD76,CD77,CD78,CD79,CD80,CD81,CD82,CD83,CD84,CD85,CD86,CD87,CD88,CD89,CD90,CD91,CD92,CD93,CD94,CD95,CD96,CD97,CD98,CD99,CD100,CD101,CD102,CD103,CD104,CD105,CD106,CD107,CD108,CD109,CD110,CD111,CD112,CD113,CD114,CD115,CD116,CD117,CD118,CD119,CD120,CD121,CD122,CD123,CD124,CD125,CD126,CD127,CD128,CD129,CD130,CD131,CD132,CD133,CD134,CD135,CD136,CD137,CD138,CD139,CD140,CD141,CD142,CD143,CD144,CD145,CD146,CD147,CD148,CD149,CD150,CD151,CD152,CD153,CD154,CD155,CD156,CD157,CD158,CD159,CD160,CD161,CD162,CD163,CD164,CD165,CD166,CD167,CD168,CD169,CD170,CD171,CD172,CD173,CD174,CD175,CD176,CD177,CD178,CD179,CD180,CD181,CD182,CD183,CD184,CD185,CD186,CD187,CD188,CD189,CD190,CD191,CD192,CD193,CD194,CD195,CD196,CD197,CD198,CD199,CD200,CD201,CD202,CD203,CD204,CD205,CD206,CD207,CD208,CD209,CD210,CD211,CD212,CD213,CD214,CD215,CD216,CD217,CD218,CD219,CD220,CD221,CD222,CD223,CD224,CD225,CD226,CD227,CD228,CD229,CD230,CD231,CD232,CD233,CD234,CD235,CD236,CD237,CD238,CD239,CD240,CD241,CD242,CD243,CD244,CD245,CD246,CD247,CD248,CD249,CD250,CD251,CD252,CD253,CD254,CD255,CD256,CD257,CD258,CD259,CD260,CD261,CD262,CD263,CD264,CD265,CD266,CD267,CD268,CD269,CD270,CD271,CD272,CD273,CD274,CD275,CD276,CD277,CD278,CD279,CD280,CD281,CD282,CD283,CD284,CD285,CD286,CD287,CD288,CD289,CD290,CD291,CD292,CD293,CD294,CD295,CD296,CD297,CD298,CD299,CD300,CD301,CD302,CD303,CD304,CD305,CD306,CD307,CD308,CD309,CD310,CD311,CD312,CD313,CD314,CD315,CD316,CD317,CD318,CD319,CD320,CD321,CD322,CD323,CD324,CD325,CD326,CD327,CD328,CD329,CD330,CD331,CD332,CD333,CD334,CD335,CD336,CD337,CD338,CD339,CD340,CD341,CD342,CD343,CD344,CD345,CD346,CD347,CD348,CD349,CD350,CD351,CD352,CD353,CD354,CD355,CD356,CD357,CD358,CD359,CD360,CD361,CD362,CD363,CD364,CD365,CD366,CD367,CD368,CD369,CD370,CD371,CD372,CD373,CD374,CD375,CD376,CD377,CD378,CD379,CD380,CD381,CD382,CD383,CD384,CD385,CD386,CD387,CD388,CD389,CD390,CD391,CD392

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2 392 CT1,CT2,CT3,CT4,CT5,CT6,CT7,CT8,CT9,CT10,CT11,CT12,CT13,CT14,CT15,CT16,CT17,CT18,CT19,CT20,CT21,CT22,CT23,CT24,CT25,CT26,CT27,CT28,CT29,CT30,CT31,CT32,CT33,CT34,CT35,CT36,CT37,CT38,CT39,CT40,CT41,CT42,CT43,CT44,CT45,CT46,CT47,CT48,CT49,CT50,CT51,CT52,CT53,CT54,CT55,CT56,CT57,CT58,CT59,CT60,CT61,CT62,CT63,CT64,CT65,CT66,CT67,CT68,CT69,CT70,CT71,CT72,CT73,CT74,CT75,CT76,CT77,CT78,CT79,CT80,CT81,CT82,CT83,CT84,CT85,CT86,CT87,CT88,CT89,CT90,CT91,CT92,CT93,CT94,CT95,CT96,CT97,CT98,CT99,CT100,CT101,CT102,CT103,CT104,CT105,CT106,CT107,CT108,CT109,CT110,CT111,CT112,CT113,CT114,CT115,CT116,CT117,CT118,CT119,CT120,CT121,CT122,CT123,CT124,CT125,CT126,CT127,CT128,CT129,CT130,CT131,CT132,CT133,CT134,CT135,CT136,CT137,CT138,CT139,CT140,CT141,CT142,CT143,CT144,CT145,CT146,CT147,CT148,CT149,CT150,CT151,CT152,CT153,CT154,CT155,CT156,CT157,CT158,CT159,CT160,CT161,CT162,CT163,CT164,CT165,CT166,CT167,CT168,CT169,CT170,CT171,CT172,CT173,CT174,CT175,CT176,CT177,CT178,CT179,CT180,CT181,CT182,CT183,CT184,CT185,CT186,CT187,CT188,CT189,CT190,CT191,CT192,CT193,CT194,CT195,CT196,CT197,CT198,CT199,CT200,CT201,CT202,CT203,CT204,CT205,CT206,CT207,CT208,CT209,CT210,CT211,CT212,CT213,CT214,CT215,CT216,CT217,CT218,CT219,CT220,CT221,CT222,CT223,CT224,CT225,CT226,CT227,CT228,CT229,CT230,CT231,CT232,CT233,CT234,CT235,CT236,CT237,CT238,CT239,CT240,CT241,CT242,CT243,CT244,CT245,CT246,CT247,CT248,CT249,CT250,CT251,CT252,CT253,CT254,CT255,CT256,CT257,CT258,CT259,CT260,CT261,CT262,CT263,CT264,CT265,CT266,CT267,CT268,CT269,CT270,CT271,CT272,CT273,CT274,CT275,CT276,CT277,CT278,CT279,CT280,CT281,CT282,CT283,CT284,CT285,CT286,CT287,CT288,CT289,CT290,CT291,CT292,CT293,CT294,CT295,CT296,CT297,CT298,CT299,CT300,CT301,CT302,CT303,CT304,CT305,CT306,CT307,CT308,CT309,CT310,CT311,CT312,CT313,CT314,CT315,CT316,CT317,CT318,CT319,CT320,CT321,CT322,CT323,CT324,CT325,CT326,CT327,CT328,CT329,CT330,CT331,CT332,CT333,CT334,CT335,CT336,CT337,CT338,CT339,CT340,CT341,CT342,CT343,CT344,CT345,CT346,CT347,CT348,CT349,CT350,CT351,CT352,CT353,CT354,CT355,CT356,CT357,CT358,CT359,CT360,CT361,CT362,CT363,CT364,CT365,CT366,CT367,CT368,CT369,CT370,CT371,CT372,CT373,CT374,CT375,CT376,CT377,CT378,CT379,CT380,CT381,CT382,CT383,CT384,CT385,CT386,CT387,CT388,CT389,CT390,CT391,CT392

10MF

3	28	C1,C6,C9,C12,C15,C18,C21,C24,C27,C30,C35,C36,C39,C42,C47,C48,C51,C54,C59,C60,C63,C66,C71,C72,C75,C78,C83,C84	0.1uF
4	56	C2,C3,C4,C5,C7,C8,C10,C11,C13,C14,C16,C17,C19,C20,C22,C23,C25,C26,C28,C29,C31,C32,C33,C34,C37,C38,C40,C41,C43,C44,C45,C46,C49,C50,C52,C53,C55,C56,C57,C58,C61,C62,C64,C65,C67,C68,C69,C70,C73,C74,C76,C77,C79,C80,C81,C82	1pF
5	28	DM1,DM2,DM3,DM4,DM5,DM6,DM7,DM8,DM9,DM10,DM11,DM12,DM13,DM14,DM15,DM16,DM17,DM18,DM19,DM20,DM21,DM22,DM23,DM24,DM25,DM26,DM27,DM28	THS4140_MO DULE_PL
6	224	JP1,JP2,JP3,JP4,JP5,JP6,JP7,JP8,JP9,JP10,JP11,JP12,JP13,JP14,JP15,JP16,JP17,JP18,JP19,JP20,JP21,JP22,JP23,JP24,JP25,JP26,JP27,JP28,JP29,JP30,JP31,JP32,JP33,JP34,JP35,JP36,JP37,JP38,JP39,JP40,JP41,JP42,JP43,JP44,JP45,JP46,JP47,JP48,JP49,JP50,JP51,JP52,JP53,JP54,JP55,JP56,JP57,JP58,JP59,JP60,JP61,JP62,JP63,JP64,JP65,JP66,JP67,JP68,JP69,JP70,JP71,JP72,JP73,JP74,JP75,JP76,JP77,JP78,JP79,JP80,JP81,JP82,JP83,JP84,JP85,JP86,JP87,JP88,JP89,JP90,JP91,JP92,JP93,JP94,JP95,JP96,JP97,JP98,JP99,JP100,JP101,JP102,JP103,JP104,JP105,JP106,JP107,JP108,JP109,JP110,JP111,JP112,JP113,JP114,JP115,JP116,JP117,JP118,JP119,JP120,JP121,JP122,JP123,JP124,JP125,JP126,JP127,JP128,JP129,JP130,JP131,JP132,JP133,JP134,JP135,JP136,JP137,JP138,JP139,JP140,JP141,JP142,JP143,JP144,JP145,JP146,JP147,JP148,JP149,JP150,JP151,JP152,JP153,JP154,JP155,JP156,JP157,JP158,JP159,JP160,JP161,JP162,JP163,JP164,JP165,JP166,JP167,JP168,JP169,JP170,JP171,JP172,JP173,JP174,JP175,JP176,JP177,JP178,JP179,JP180,JP181,JP182,JP183,JP184,JP185,JP186,JP187,JP188,JP189,JP190,JP191,JP192,JP193,JP194,JP195,JP196,JP197,JP198,JP199,JP200,JP201,JP202,JP203,JP204,JP205,JP206,JP207,JP208,JP209,JP210,JP211,JP212,JP213,JP214,JP215,JP216,JP217,JP218,JP219,JP220,JP221,JP222,JP223,JP224	JUMPER
7	28	J1,J6,J11,J12,J15,J18,J21,J24,J27,J30,J35,J36,J39,J42,J47,J48,J51,J54,J59,J60,J63,J66,J71,J72,J75,J78,J83,J84	I/P_CON
8	28	J2,J4,J7,J8,J13,J16,J19,J22,J25,J28,J31,J32,J37,J40,J43,J44,J49,J52,J55,J56,J61,J64,J67,J68,J73,J76,J79,J80	CON3
9	28	J3,J5,J9,J10,J14,J17,J20,J23,J26,J29,J33,J34,J38,J41,J45,J46,J50,J53,J57,J58,J62,J65,J69,J70,J74,J77,J81,J82	O/P_CON
10	6	J87,J88,J89,J90,J91,J92	CON25
11	28	LS1,LS2,LS3,LS4,LS5,LS6,LS7,LS8,LS9,LS10,LS11,LS12,LS13,LS14,LS15,LS16,LS17,LS18,LS19,LS20,LS21,LS22,LS23,LS24,LS25,LS26,LS27,LS28	RELAY SPDT
12	28	PM1,PM2,PM3,PM4,PM5,PM6,PM7,PM8,PM9,PM10,PM11,PM12,PM13,PM14,PM15,PM16,PM17,PM18,PM19,PM20,PM21,PM22,PM23,PM24,PM25,PM26,PM27,PM28	Analog_Opto_ Module
13	28	R1,R27,R47,R61,R87,R107,R127,R147,R167,R187,R213,R214,R247,R267,R293,R294,R327,R347,R373,R374,R407,R427,R453,R454,R488,R508,R534,R535	1M
14	28	R2,R22,R42,R56,R83,R103,R123,R143,R163,R183,R204,R208,R243,R263,R284,R288,R323,R343,R364,R368,R403,R423,R444,R448,R484,R503,R525,R529	100R
15	56	R3,R6,R24,R28,R44,R48,R58,R62,R81,R88,R101,R108,R121,R128,R141,R148,R161,R168,R181,R188,R201,R203,R215,R216,R241,R248,R261,R268,R281,R283,R295,R296,R321,R328,R341,R348,R361,R363,R375,R376,R401,R408,R421,R428,R441,R443,R455,R456,R482,R489,R502,R509,R522,R524,R536,R537	1K
16	56	R4,R7,R23,R25,R43,R45,R57,R59,R84,R85,R104,R105,R124,R126,R144,R145,R164,R166,R184,R186,R205,R207,R210,R211,R244,R246,R264,R266,R285,R287,R290,R291,R324,R326,R344,R346,R365,R367,R370,R371,R404,R406,R424,R426,R445,R447,R450,R451,R485,R487,R505,R507,R526,R528,R531,R532	10K
17	28	R5,R26,R46,R60,R86,R106,R125,R146,R165,R185,R209,R212,R245,R265,R289,R292,R325,R345,R369,R372,R405,R425,R449,R452,R486,R506,R530,R533	9.1K



18	28	R8,R11,R41,R55,R82,R102,R122,R142,R162,R182,R202,R206,R242,R262,R282,R286,R322,R342,R362,R366,R402,R422,R442,R446,R483,R504,R523,R527	RESISTOR
19	336	R9,R10,R12,R13,R14,R15,R16,R17,R18,R19,R20,R21,R29,R30,R31,R32,R33,R34,R35,R36,R37,R38,R39,R40,R49,R50,R51,R52,R53,R54,R63,R64,R65,R66,R67,R68,R69,R70,R71,R72,R73,R74,R75,R76,R77,R78,R79,R80,R89,R90,R91,R92,R93,R94,R95,R96,R97,R98,R99,R100,R109,R110,R111,R112,R113,R114,R115,R116,R117,R118,R119,R120,R129,R130,R131,R132,R133,R134,R135,R136,R137,R138,R139,R140,R149,R150,R151,R152,R153,R154,R155,R156,R157,R158,R159,R160,R169,R170,R171,R172,R173,R174,R175,R176,R177,R178,R179,R180,R189,R190,R191,R192,R193,R194,R195,R196,R197,R198,R199,R200,R217,R218,R219,R220,R221,R222,R223,R224,R225,R226,R227,R228,R229,R230,R231,R232,R233,R234,R235,R236,R237,R238,R239,R240,R249,R250,R251,R252,R253,R254,R255,R256,R257,R258,R259,R260,R269,R270,R271,R272,R273,R274,R275,R276,R277,R278,R279,R280,R297,R298,R299,R300,R301,R302,R303,R304,R305,R306,R307,R308,R309,R310,R311,R312,R313,R314,R315,R316,R317,R318,R319,R320,R329,R330,R331,R332,R333,R334,R335,R336,R337,R338,R339,R340,R349,R350,R351,R352,R353,R354,R355,R356,R357,R358,R359,R360,R377,R378,R379,R380,R381,R382,R383,R384,R385,R386,R387,R388,R389,R390,R391,R392,R393,R394,R395,R396,R397,R398,R399,R400,R409,R410,R411,R412,R413,R414,R415,R416,R417,R418,R419,R420,R429,R430,R431,R432,R433,R434,R435,R436,R437,R438,R439,R440,R457,R458,R459,R460,R461,R462,R463,R464,R465,R466,R467,R468,R469,R470,R471,R472,R473,R474,R475,R476,R477,R478,R479,R480,R481,R490,R491,R492,R493,R494,R495,R496,R497,R498,R499,R500,R501,R510,R511,R512,R513,R514,R515,R516,R517,R518,R519,R520,R521,R538,R539,R540,R541,R542,R543,R544,R545,R546,R547,R548,R549,R550,R551,R552,R553,R554,R555,R556,R557,R558,R559,R560	R
20	28	TP1,TP7,TP13,TP15,TP25,TP31,TP37,TP43,TP49,TP55,TP61,TP62,TP73,TP79,TP85,TP86,TP97,TP103,TP109,TP110,TP121,TP127,TP133,TP134,TP146,TP152,TP158,TP159	I-VO/PCH1
21	28	TP2,TP10,TP19,TP21,TP28,TP34,TP40,TP46,TP52,TP58,TP67,TP70,TP76,TP82,TP91,TP94,TP100,TP106,TP115,TP118,TP124,TP130,TP139,TP142,TP149,TP155,TP164,TP167	AMPO/P
22	28	TP3,TP8,TP14,TP16,TP26,TP32,TP38,TP44,TP50,TP56,TP63,TP64,TP74,TP80,TP87,TP88,TP98,TP104,TP111,TP112,TP122,TP128,TP135,TP136,TP147,TP153,TP160,TP161	F1_IN_CH1
23	28	TP4,TP12,TP23,TP24,TP30,TP36,TP42,TP48,TP54,TP60,TP71,TP72,TP78,TP84,TP95,TP96,TP102,TP108,TP119,TP120,TP126,TP132,TP143,TP144,TP145,TP151,TP157,TP168	F2_IN_CH1
24	28	TP5,TP11,TP20,TP22,TP29,TP35,TP41,TP47,TP53,TP59,TP68,TP69,TP77,TP83,TP92,TP93,TP101,TP107,TP116,TP117,TP125,TP131,TP140,TP141,TP150,TP156,TP165,TP166	OPTO_IN_CH1
25	28	TP6,TP9,TP17,TP18,TP27,TP33,TP39,TP45,TP51,TP57,TP65,TP66,TP75,TP81,TP89,TP90,TP99,TP105,TP113,TP114,TP123,TP129,TP137,TP138,TP148,TP154,TP162,TP163	OPTO_O/P
26	23	U1,U17,U33,U35,U44,U53,U62,U71,U80,U89,U105,U115,U124,U140,U150,U159,U175,U185,U194,U210,U220,U229,U245	OPA404/SO
27	28	U2,U16,U31,U32,U43,U52,U61,U70,U79,U88,U103,U104,U114,U123,U138,U139,U149,U158,U173,U174,U184,U193,U208,U209,U219,U228,U243,U244	NUD3160_CA SE318
28	28	U3,U12,U21,U25,U39,U48,U57,U66,U75,U84,U95,U97,U110,U119,U130,U132,U145,U154,U165,U167,U180,U189,U200,U202,U215,U224,U235,U237	REF2.5_SOT23



29	28	U4,U10,U19,U23,U37,U46,U55,U64,U73,U82,U91,U92,U108,U117,U126,U127,U143,U152,U161,U162,U178,U187,U196,U197,U213,U222,U231,U232	BUF634
30	28	U5,U14,U27,U28,U41,U50,U59,U68,U77,U86,U99,U100,U112,U121,U134,U135,U147,U156,U169,U170,U182,U191,U204,U205,U217,U226,U239,U240	ADG5209_tss op
31	28	U6,U15,U29,U30,U42,U51,U60,U69,U78,U87,U101,U102,U113,U122,U136,U137,U148,U157,U171,U172,U183,U192,U206,U207,U218,U227,U241,U242	AD8250
32	28	U7,U13,U22,U26,U40,U49,U58,U67,U76,U85,U96,U98,U111,U120,U131,U133,U146,U155,U166,U168,U181,U190,U201,U203,U216,U225,U236,U238	ADG436BN
33	56	U8,U9,U11,U18,U20,U24,U34,U36,U38,U45,U47,U54,U56,U63,U65,U72,U74,U81,U83,U90,U93,U94,U106,U107,U109,U116,U118,U125,U128,U129,U141,U142,U144,U151,U153,U160,U163,U164,U176,U177,U179,U186,U188,U195,U198,U199,U211,U212,U214,U221,U223,U230,U233,U234,U246,U247	LTC1563-2