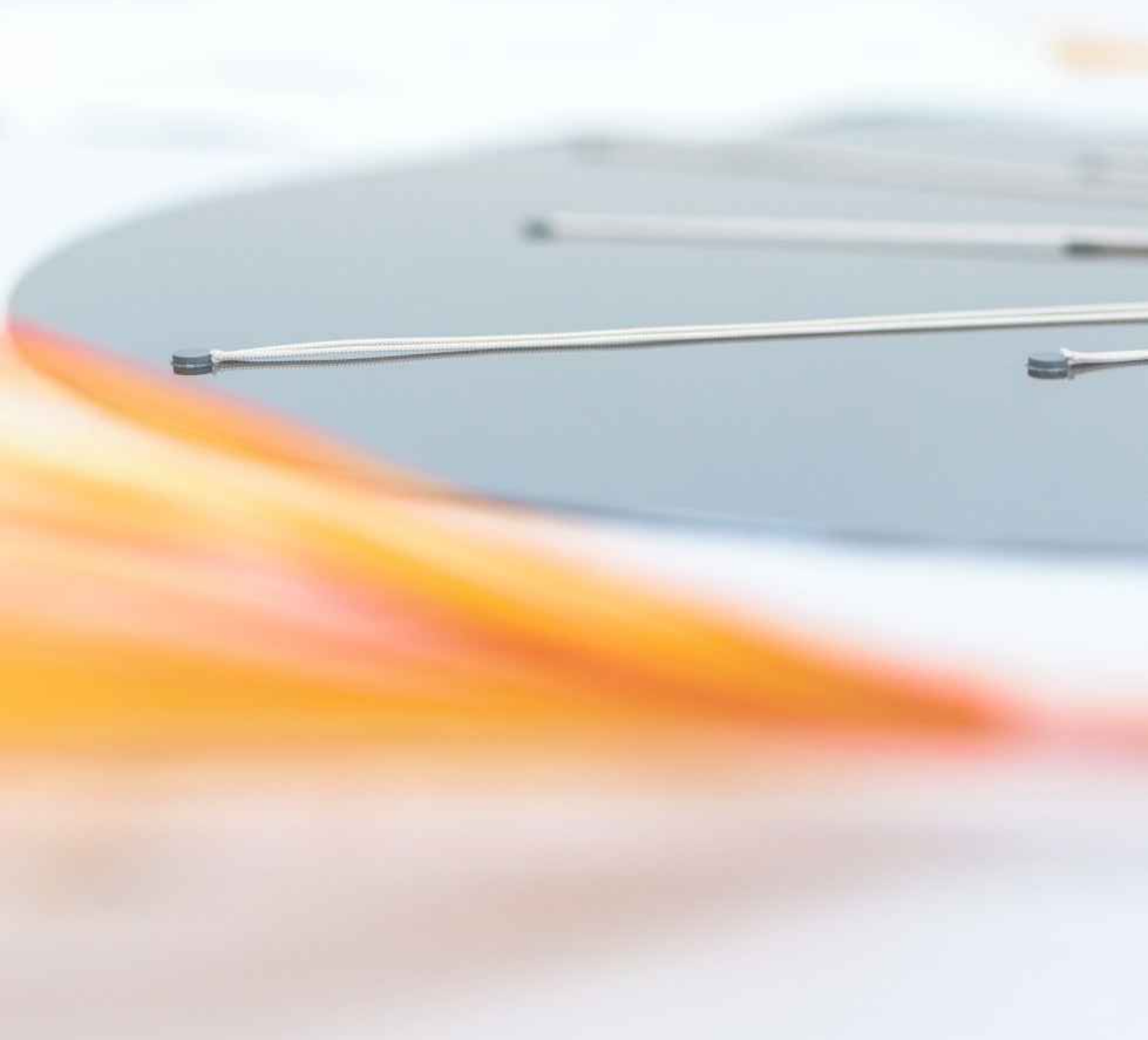


WAFER TEMPERATURE SENSORS

SECTION SEMI



THERMO ELECTRIC
COTEMP SENSING

THERMOCOUPLE SPECIFICATIONS

TYPE K THERMOCOUPLE SPECIFICATION DETAIL

OPERATIONAL RANGE	-200°C TO 1260°C
SPECIAL TOLERANCE (0°C to 1260°C)	±0.4% OR ±1.1°C, WHICHEVER IS GREATER
WIRE DIAMETER	30 AWG (0.254mm Ø), 36 AWG (0.127mm Ø)

TYPE N THERMOCOUPLE SPECIFICATION DETAIL

OPERATIONAL RANGE	0°C TO 1260°C
SPECIAL TOLERANCE (0°C to 1260°C)	±0.4% OR ±1.1°C, WHICHEVER IS GREATER
WIRE DIAMETER	30 AWG (0.254mm Ø), 36 AWG (0.127mm Ø)

TYPE T THERMOCOUPLE SPECIFICATION DETAIL

OPERATIONAL RANGE	-200°C TO 370°C
SPECIAL TOLERANCE (0°C to 370°C)	±0.4% OR ±0.5°C, WHICHEVER IS GREATER
WIRE DIAMETER	30 AWG (0.254mm Ø), 36 AWG (0.127mm Ø)

TYPE E THERMOCOUPLE SPECIFICATION DETAIL

OPERATIONAL RANGE	-200°C TO 870°C
SPECIAL TOLERANCE (0°C to 870°C)	±0.4% OR ±1.0°C, WHICHEVER IS GREATER
WIRE DIAMETER	30 AWG (0.254mm Ø), 36 AWG (0.127mm Ø)

TYPE R OR S THERMOCOUPLE SPECIFICATION DETAIL

OPERATIONAL RANGE	0°C TO 1480°C
STANDARD TOLERANCE (0°C to 1480°C) [NOTE 3]	±0.25% OR ±1.5°C, WHICHEVER IS GREATER [NOTE 3]
WIRE DIAMETER	30 AWG (0.254mm Ø), 36 AWG (0.127mm Ø)

NOTES:

1. TOLERANCES ARE ONLY APPLICABLE TO TEMPERATURES ABOVE 0°C PER ASTM E230.
2. OPERATIONAL RANGES AND TOLERANCES ARE BASED ON ASTM E230 TABLE 1 AND APPLY TO THERMOCOUPLE WIRE ONLY. RANGES INCLUDE TEMPERATURES BELOW 0°C WHERE SPECIAL TOLERANCES ARE NOT DEFINED. ACTUAL ASSEMBLY LIMITS MAY BE LOWER.
3. PLATINUM THERMOCOUPLES (TYPE R AND S) ARE ONLY AVAILABLE IN STANDARD TOLERANCE.



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SECTION SEMI

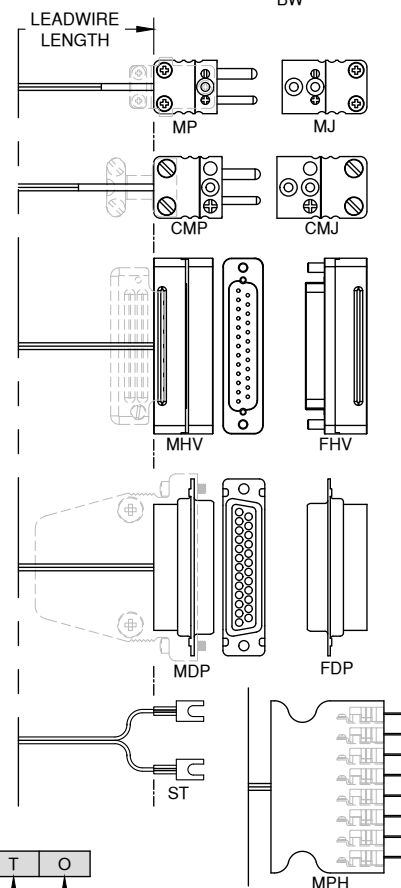
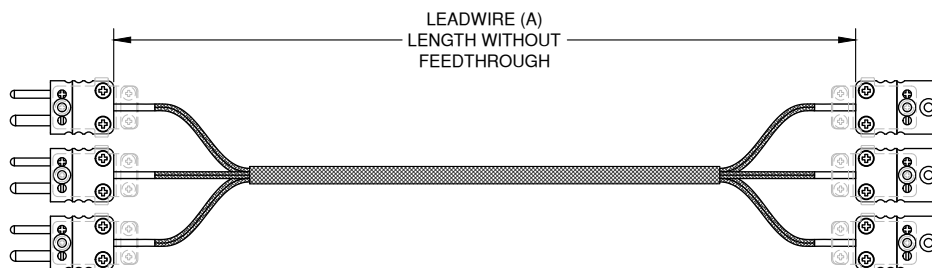
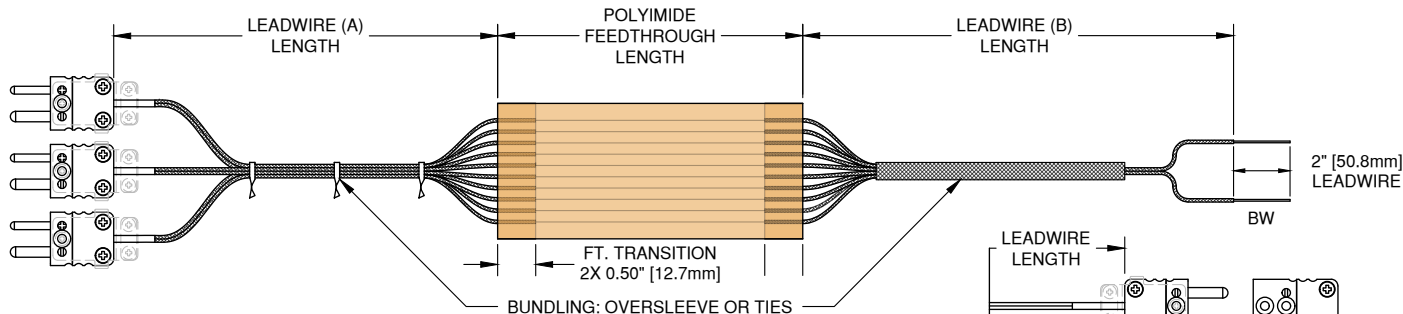
WIRE SPECIFICATION DETAILS

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Doc. No.: SEMI-080

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SEMI WIRE HARNESS



CODE	THERMOCOUPLE QUANTITY
#	# = TOTAL QUANTITY OF TC

CODE	THERMOCOUPLE TYPE
K	TYPE K: CHROMEL(+), ALUMEL(-)
T	TYPE T: COPPER(+), CONSTANTAN(-)
N	TYPE N: NICROSIL(+), NISIL(-)
E	TYPE E: CHROMEL(+), CONSTANTAN(-)
R	TYPE R: PLATINUM 13% RHODIUM(+), PLATINUM(-)
S	TYPE S: PLATINUM 10% RHODIUM(+), PLATINUM(-)

CODE	WIRE GAUGE
30	30 AWG (0.254mm Ø)
36	36 AWG (0.127mm Ø)

SEMI-100 : 3 K 36 S 300 150 T 300 MP / BW T O

CODE	"A" INSULATION MATERIAL
T	TEFLON (260°C)
F	FIBERGLASS (316°C)
P	POLYIMIDE (400°C)
S	SILICA (950°C)
Q	QUARTZ (1100°C)
C	CERAMIC (1204°C)

CODE	"A" LEAD LENGTH
#	# = LENGTH (mm)

CODE	VACUUM FEEDTHROUGH LENGTH
N	NONE
#	# = LENGTH (mm), ROUNDED TO NEAREST INCH

CODE	VACUUM FEEDTHROUGH THICKNESS
T#	0 OR 1 (LEAVE BLANK)
	# = TAPE LAYERS

CODE	"B" INSULATION MATERIAL
N	NONE
T	TEFLON (260°C)
F	FIBERGLASS (316°C)
P	POLYIMIDE (400°C)
S	SILICA (950°C)
Q	QUARTZ (1100°C)
C	CERAMIC (1204°C)

CODE	"B" LENGTH BUNDLING
N	NONE
T	TIES
O	OVERSLEEVE

CODE	"A" LENGTH BUNDLING
N	NONE
T	TIES
O	OVERSLEEVE

CODE	"A" / "B" WIRE TERMINATION
MP	MINI PLUG (220°C)
MPH	MINI PLUG WITH 8-CH DAQ HOUSING (50°C)
MJ	MINI JACK (220°C)
CMP	CERAMIC MINI PLUG (650°C)
CMJ	CERAMIC MINI JACK (650°C)
MDP	MALE D-SUB CONNECTOR (50°C)
FDP	FEMALE D-SUB CONNECTOR (50°C)
MHV	MALE UHV D-SUB CONNECTOR (250°C, 400°C)
FHV	FEMALE UHV D-SUB CONNECTOR (250°C, 400°C)
BW	BARE WIRE (WIRE LIMIT)
ST	SPADE TERMINAL (WIRE LIMIT)

CODE	"B" LEAD LENGTH
0	(LEAVE BLANK)
#	# = LENGTH (mm)



THERMO ELECTRIC
COTEMP SENSING

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SECTION SEMI

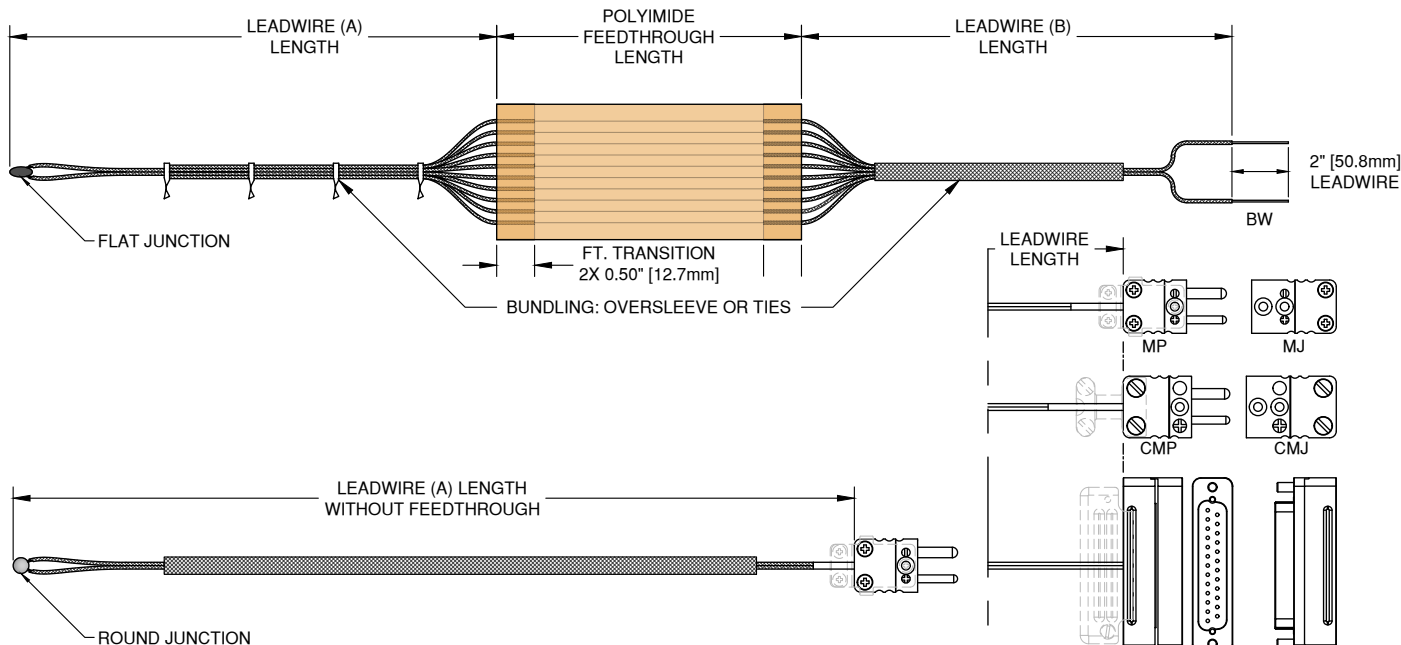
WIRE HARNESS

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Doc. No.: SEMI-100

Rev.
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SEMI BARE THERMOCOUPLE



CODE	TERMINATION
#	# = TOTAL QUANTITY OF TC

CODE	TERMINATION
K	TYPE K: CHROMEL(+), ALUMEL(-)
T	TYPE T: COPPER(+), CONSTANTAN(-)
N	TYPE N: NICHROSIL(+), NISIL(-)
E	TYPE E: CHROMEL(+), CONSTANTAN(-)
R	TYPE R: PLATINUM 13% RHODIUM(+), PLATINUM(-)
S	TYPE S: PLATINUM 10% RHODIUM(+), PLATINUM(-)

CODE	WIRE GAUGE
30	30 AWG (0.254mm Ø)
36	36 AWG (0.127mm Ø)

SEMI-110: 1 K 36 C 450 150 C 300 CMP T O R

CODE	"A" INSULATION MATERIAL
T	TEFLON (260°C)
F	FIBERGLASS (316°C)
P	POLYIMIDE (400°C)
S	SILICA (950°C)
Q	QUARTZ (1100°C)
C	CERAMIC (1204°C)

CODE	"A" LEAD LENGTH
#	# = LENGTH (mm)

CODE	VACUUM FEEDTHROUGH LENGTH
N	NONE
#	# = LENGTH (mm), ROUNDED TO NEAREST INCH

CODE	VACUUM FEEDTHROUGH THICKNESS
T#	0 OR 1 (LEAVE BLANK) # = TAPE LAYERS

CODE	"B" INSULATION MATERIAL
N	NONE
T	TEFLON (260°C)
F	FIBERGLASS (316°C)
P	POLYIMIDE (400°C)
S	SILICA (950°C)
Q	QUARTZ (1100°C)
C	CERAMIC (1204°C)

CODE	"B" LEAD LENGTH
#	0 (LEAVE BLANK) # = LENGTH (mm)

CODE	JUNCTION
R	ROUND
F	FLATTENED

CODE	"B" LENGTH BUNDLING
N	NONE
T	TIES
O	OVERSLEEVE

CODE	"A" LENGTH BUNDLING
N	NONE
T	TIES
O	OVERSLEEVE

CODE	WIRE TERMINATION
MP	MINI PLUG (220°C)
MPH	MINI PLUG WITH 8-CH DAQ HOUSING (50°C)
MJ	MINI JACK (220°C)
CMP	CERAMIC MINI PLUG (650°C)
CMJ	CERAMIC MINI JACK (650°C)
MDP	MALE D-SUB CONNECTOR (50°C)
FDP	FEMALE D-SUB CONNECTOR (50°C)
MHV	MALE UHV D-SUB CONNECTOR (250°C, 400°C)
FHV	FEMALE UHV D-SUB CONNECTOR (250°C, 400°C)
BW	BARE WIRE (WIRE LIMIT)
ST	SPADE TERMINAL (WIRE LIMIT)



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SECTION SEMI

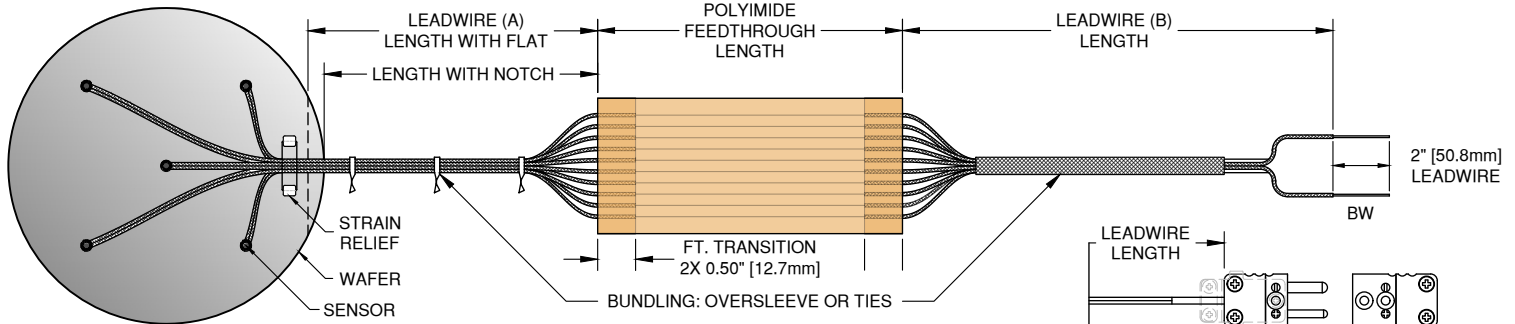
BARE THERMOCOUPLE

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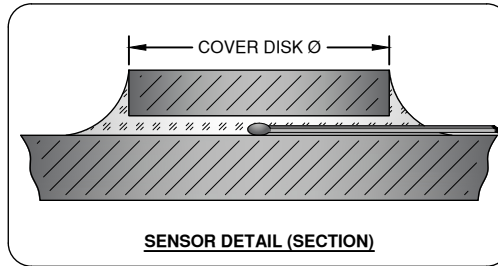
Doc. No.: SEMI-110

Rev.
1

TCW-H [400, 600]



WIRE GAUGE	COVER DISK Ø
30 AWG	6.0 mm
36 AWG	3.0 mm



SENSOR DETAIL (SECTION)

CODE	BONDING TYPE
HG	HIGH-TEMP BONDED - GROUNDED

CODE	WAFER GRADE
M	MECHANICAL GRADE
P	PRIME GRADE
SP	CUSTOMER SUPPLIED OR SP WAFER

CODE	WAFER Ø (THICKNESS)
050	2" WITH FLAT (275±25 µm)
075	3" WITH FLAT (375±25 µm)
100	100mm WITH FLAT (525±25 µm)
125	125mm WITH FLAT (625±25 µm)
150	150mm WITH FLAT (675±25 µm)
200	200mm WITH FLAT (725±25 µm)
300	300mm WITH NOTCH (775±25 µm)
XXX	SPECIFY OTHER SIZE

CODE	WIRE TERMINATION
MP	MINI PLUG (220°C)
MPH	MINI PLUG WITH 8-CH DAQ HOUSING (50°C)
MJ	MINI JACK (220°C)
CMP	CERAMIC MINI PLUG (650°C)
CMJ	CERAMIC MINI JACK (650°C)
MDP	MALE D-SUB CONNECTOR (50°C)
FDP	FEMALE D-SUB CONNECTOR (50°C)
MHV	MALE UHV D-SUB CONNECTOR (250°C, 400°C)
FHV	FEMALE UHV D-SUB CONNECTOR (250°C, 400°C)
BW	BARE WIRE (WIRE LIMIT)
ST	SPADE TERMINAL (WIRE LIMIT)

CODE	MAX OPERATING TEMP. [NOTE 3]
4	400°C
6	600°C

CONFIGURATION CODE

SEMI-120 : HG - M 200 - 6 - 3 K 36 - S 300 - 150 - T2 - T 300 - MP - 1 T O

CODE	THERMOCOUPLE QUANTITY
#	# = TOTAL QUANTITY OF TC

CODE	THERMOCOUPLE TYPE
K	TYPE K: CHROMEL(+), ALUMEL(-)
N	TYPE N: NICROSIL(+), NISIL(-)
E	TYPE E: CHROMEL(+), CONSTANTAN(-)

CODE	WIRE GAUGE
30	30 AWG (0.254mm Ø)
36	36 AWG (0.127mm Ø)

CODE	"A" INSULATION MATERIAL
T	TEFLON (260°C)
F	FIBERGLASS (316°C)
P	POLYIMIDE (400°C)
S	SILICA (950°C)
Q	QUARTZ (1100°C)
C	CERAMIC (1204°C)

CODE	"A" LEAD LENGTH
#	# = LENGTH (mm)

CODE	VACUUM FEEDTHROUGH LENGTH
N	NONE
#	# = LENGTH (mm), ROUNDED TO NEAREST INCH

CODE	VACUUM FEEDTHROUGH QUANTITY
X#	# = FEEDTHROUGH QUANTITY

CODE	"B" LENGTH BUNDLING
N	NONE
T	TIES
O	OVERSLEEVE

CODE	"A" LENGTH BUNDLING
N	NONE
T	TIES
O	OVERSLEEVE

CODE	STRAIN RELIEF
0	NONE
#	# = STRAIN RELIEF QUANTITY

CODE	"B" LEAD LENGTH
0	(LEAVE BLANK)
#	# = LENGTH (mm)

CODE	"B" INSULATION MATERIAL
N	NONE
T	TEFLON (260°C)
F	FIBERGLASS (316°C)
P	POLYIMIDE (400°C)
S	SILICA (950°C)
Q	QUARTZ (1100°C)
C	CERAMIC (1204°C)

CODE	VACUUM FEEDTHROUGH THICKNESS
T#	# = TAPE LAYERS

NOTES:

- ALL STANDARD WAFERS ARE P-TYPE SILICON SUBSTRATES. OTHER SUBSTRATE MATERIALS MAY BE AVAILABLE UPON REQUEST.
- GROUNDED THERMOCOUPLE CONFIGURATION
- MAX OPERATING TEMPERATURE CODE IS AN ESTIMATE AND APPLIES TO THE WAFER/SENSING AREA ONLY.
- ACTUAL TEMPERATURE LIMIT IS SET BY THE LOWEST TEMPERATURE RATING OF THE SELECTED COMPONENTS. POLYIMIDE FEEDTHROUGHS ARE LIMITED TO 260°C.



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SECTION SEMI

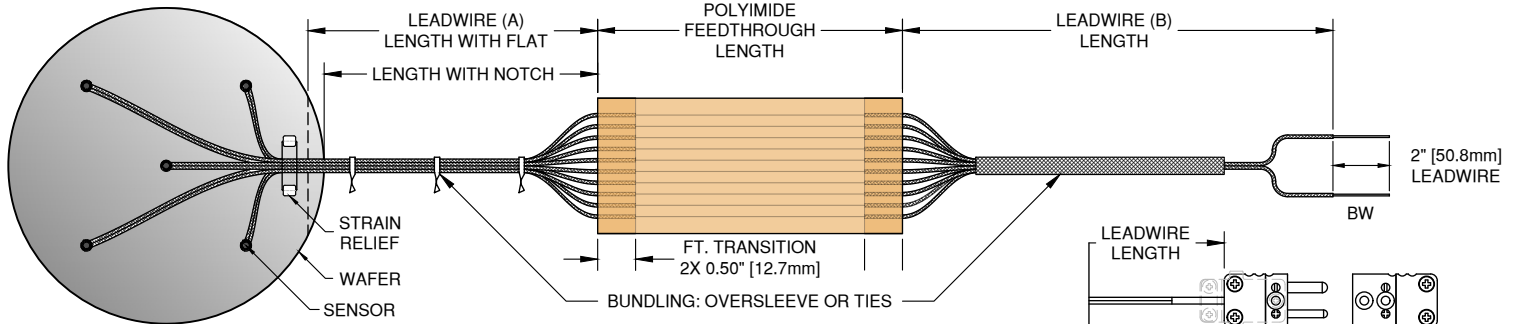
TCW-H [400, 600]

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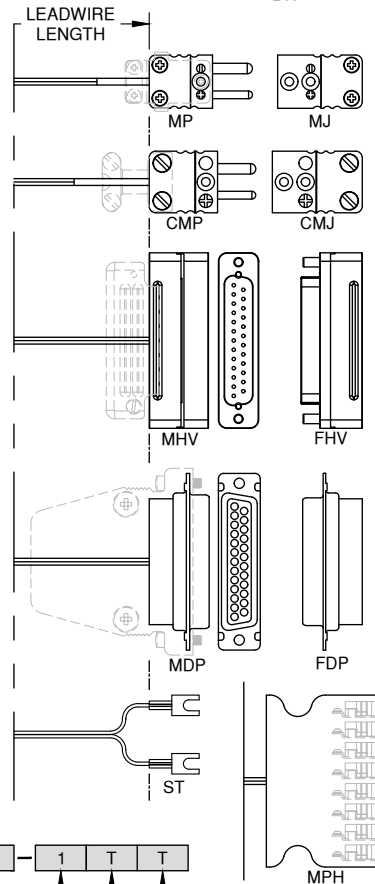
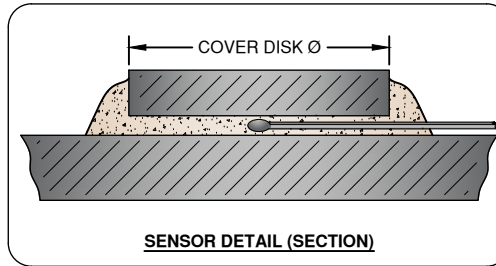
Doc. No.: SEMI-120

Rev.
1

TCW-R [400, 600, 800, 1200]



WIRE GAUGE	COVER DISK Ø
30 AWG	6.0 mm
36 AWG	3.0 mm



CODE	BONDING TYPE
RG	ROOM-TEMP BONDED - GROUNDED
RU	ROOM-TEMP BONDED - UNGROUNDED

CODE	WAFER GRADE
M	MECHANICAL GRADE
P	PRIME GRADE
SP	CUSTOMER SUPPLIED OR SP WAFER

CODE	WAFER Ø (THICKNESS)
050	2" WITH FLAT (275±25 µm)
075	3" WITH FLAT (375±25 µm)
100	100mm WITH FLAT (525±25 µm)
125	125mm WITH FLAT (625±25 µm)
150	150mm WITH FLAT (675±25 µm)
200	200mm WITH NOTCH (725±25 µm)
300	300mm WITH NOTCH (775±25 µm)
XXX	SPECIFY OTHER SIZE

CODE	WIRE TERMINATION
MP	MINI PLUG (220°C)
MPH	MINI PLUG WITH 8-CH DAQ HOUSING (50°C)
MJ	MINI JACK (220°C)
CMP	CERAMIC MINI PLUG (650°C)
CMJ	CERAMIC MINI JACK (650°C)
MDP	MALE D-SUB CONNECTOR (50°C)
FDP	FEMALE D-SUB CONNECTOR (50°C)
MHV	MALE UHV D-SUB CONNECTOR (250°C, 400°C)
FHV	FEMALE UHV D-SUB CONNECTOR (250°C, 400°C)
BW	BARE WIRE (WIRE LIMIT)
ST	SPADE TERMINAL (WIRE LIMIT)

CODE	MAX OPERATING TEMP. [NOTE 2]
4	400°C
6	600°C
8	800°C
12	1200°C

SEMI-130 : **RU** - **SP** - **300** - **4** - **5** - **T** - **30** - **S** - **450** - **200** - **T** - **500** - **MP** - **1** - **T** - **T**

CODE	THERMOCOUPLE QUANTITY
#	# = TOTAL QUANTITY OF TC

CODE	THERMOCOUPLE TYPE
K	TYPE K: CHROMEL(+), ALUMEL(-)
T	TYPE T: COPPER(+), CONSTANTAN(-)
N	TYPE N: NICHROSIL(+), NISIL(-)
E	TYPE E: CHROMEL(+), CONSTANTAN(-)
R	TYPE R: PLATINUM 13% RHODIUM(+), PLATINUM(-)
S	TYPE S: PLATINUM 10% RHODIUM(+), PLATINUM(-)

CODE	WIRE GAUGE
30	30 AWG (0.254mm Ø)
36	36 AWG (0.127mm Ø)

CODE	"A" INSULATION MATERIAL
T	TEFLON (260°C)
F	FIBERGLASS (316°C)
P	POLYIMIDE (400°C)
S	SILICA (950°C)
Q	QUARTZ (1100°C)
C	CERAMIC (1204°C)

CODE	"A" LEAD LENGTH
#	# = LENGTH (mm)

CODE	VACUUM FEEDTHROUGH LENGTH
N	NONE
#	# = LENGTH (mm), ROUNDED TO NEAREST INCH

CODE	VACUUM FEEDTHROUGH QUANTITY
0 OR 1	(LEAVE BLANK)
X#	# = FEEDTHROUGH QUANTITY

CODE	"B" LENGTH BUNDLING
N	NONE
T	TIES
O	OVERSLEEVE

CODE	"A" LENGTH BUNDLING
N	NONE
T	TIES
O	OVERSLEEVE

CODE	STRAIN RELIEF
0	NONE
#	# = STRAIN RELIEF QUANTITY

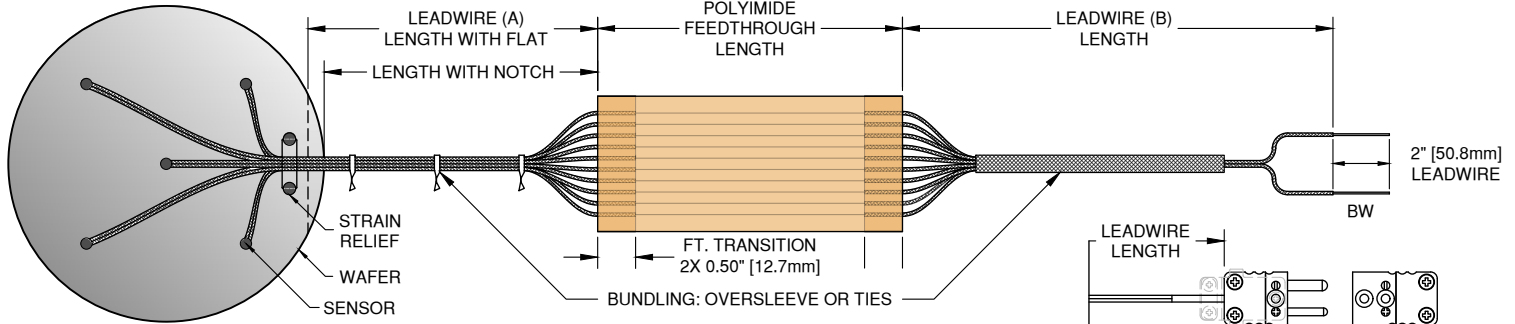
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0	(LEAVE BLANK)
#	# = LENGTH (mm)

CODE	"B" INSULATION MATERIAL
N	NONE
T	TEFLON (260°C)
F	FIBERGLASS (316°C)
P	POLYIMIDE (400°C)
S	SILICA (950°C)
Q	QUARTZ (1100°C)
C	CERAMIC (1204°C)

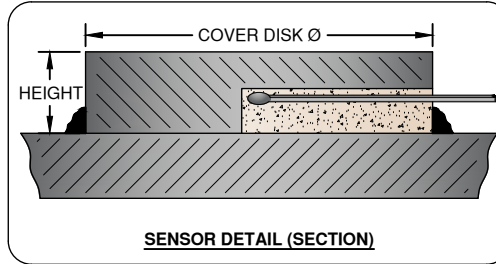
CODE	VACUUM FEEDTHROUGH THICKNESS
0 OR 1	(LEAVE BLANK)
T#	# = TAPE LAYERS

- NOTES:
1. ALL STANDARD WAFERS ARE P-TYPE SILICON SUBSTRATES. OTHER SUBSTRATE MATERIALS MAY BE AVAILABLE UPON REQUEST.
 2. MAX OPERATING TEMPERATURE CODE IS AN ESTIMATE AND APPLIES TO THE WAFER/SENSING AREA ONLY.
 3. ACTUAL TEMPERATURE LIMIT IS SET BY THE LOWEST TEMPERATURE RATING OF THE SELECTED COMPONENTS. POLYIMIDE FEEDTHROUGHS ARE LIMITED TO 260°C.
 4. UNGROUNDING CONFIGURATION IS RECOMMENDED FOR APPLICATIONS SUBJECT TO ELECTRICAL INTERFERENCE

TCW-W [400, 600, 1200]



WAFER Ø	COVER DISK Ø	COVER DISK HEIGHT
<100 mm	4.0 mm	0.8 mm
≥100 mm	4.5 mm	1 mm



CODE	BONDING TYPE
WG	WELDED - GROUNDED
WU	WELDED - UNGROUNDED

CODE	WAFER GRADE
M	MECHANICAL GRADE
P	PRIME GRADE
SP	CUSTOMER SUPPLIED OR SP WAFER

CODE	WAFER Ø (THICKNESS)
050	2" WITH FLAT (275±25 µm)
075	3" WITH FLAT (375±25 µm)
100	100mm WITH FLAT (525±25 µm)
125	125mm WITH FLAT (625±25 µm)
150	150mm WITH FLAT (675±25 µm)
200	200mm WITH NOTCH (725±25 µm)
300	300mm WITH NOTCH (775±25 µm)
XXX	SPECIFY OTHER SIZE

CODE	WIRE TERMINATION
MP	MINI PLUG (220°C)
MPH	MINI PLUG WITH 8-CH DAQ HOUSING (50°C)
MJ	MINI JACK (220°C)
CMP	CERAMIC MINI PLUG (650°C)
CMJ	CERAMIC MINI JACK (650°C)
MDP	MALE D-SUB CONNECTOR (50°C)
FDP	FEMALE D-SUB CONNECTOR (50°C)
MHV	MALE UHV D-SUB CONNECTOR (250°C, 400°C)
FHV	FEMALE UHV D-SUB CONNECTOR (250°C, 400°C)
BW	BARE WIRE (WIRE LIMIT)
ST	SPADE TERMINAL (WIRE LIMIT)

CODE	MAX OPERATING TEMP. [NOTE 2]
4	400°C
6	600°C
12	1200°C

SEMI-140 : WU - P 300 - 12 - 24 N 36 - C 450 - 300 X2 T3 - T 1000 - FDP - 3 T O

CODE	THERMOCOUPLE QUANTITY
#	# = TOTAL QUANTITY OF TC

CODE	THERMOCOUPLE TYPE
K	TYPE K: CHROMEL(+), ALUMEL(-)
T	TYPE T: COPPER(+), CONSTANTAN(-)
N	TYPE N: NICROSIL(+), NISIL(-)
E	TYPE E: CHROMEL(+), CONSTANTAN(-)
R	TYPE R: PLATINUM 13% RHODIUM(+), PLATINUM(-)
S	TYPE S: PLATINUM 10% RHODIUM(+), PLATINUM(-)

CODE	WIRE GAUGE
36	36 AWG (0.127mm Ø)

CODE	"A" INSULATION MATERIAL
T	TEFLON (260°C)
F	FIBERGLASS (316°C)
P	POLYIMIDE (400°C)
S	SILICA (950°C)
Q	QUARTZ (1100°C)
C	CERAMIC (1204°C)

CODE	"A" LEAD LENGTH
#	# = LENGTH (mm)

CODE	VACUUM FEEDTHROUGH LENGTH
N	NONE
#	# = LENGTH (mm), ROUNDED TO NEAREST INCH

CODE	VACUUM FEEDTHROUGH QUANTITY
X#	# = FEEDTHROUGH QUANTITY

CODE	"B" LENGTH BUNDLING
N	NONE
T	TIES
O	OVERSLEEVE

CODE	"A" LENGTH BUNDLING
N	NONE
T	TIES
O	OVERSLEEVE

CODE	STRAIN RELIEF
0	NONE
#	# = STRAIN RELIEF QUANTITY

CODE	"B" LEAD LENGTH
0	(LEAVE BLANK)
#	# = LENGTH (mm)

CODE	"B" INSULATION MATERIAL
N	NONE
T	TEFLON (260°C)
F	FIBERGLASS (316°C)
P	POLYIMIDE (400°C)
S	SILICA (950°C)
Q	QUARTZ (1100°C)
C	CERAMIC (1204°C)

CODE	VACUUM FEEDTHROUGH THICKNESS
0 OR 1	(LEAVE BLANK)
T#	# = TAPE LAYERS

NOTES:

- ALL STANDARD WAFERS ARE P-TYPE SILICON SUBSTRATES. OTHER SUBSTRATE MATERIALS MAY BE AVAILABLE UPON REQUEST.
- MAX OPERATING TEMPERATURE CODE IS AN ESTIMATE AND APPLIES TO THE WAFER/SENSING AREA ONLY.
- ACTUAL TEMPERATURE LIMIT IS SET BY THE LOWEST TEMPERATURE RATING OF THE SELECTED COMPONENTS. POLYIMIDE FEEDTHROUGHS ARE LIMITED TO 260°C.
- UNGROUNDING CONFIGURATION IS RECOMMENDED FOR APPLICATIONS SUBJECT TO ELECTRICAL INTERFERENCE.
- ALL STANDARD WAFERS ARE SILICON SUBSTRATES.



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SECTION SEMI

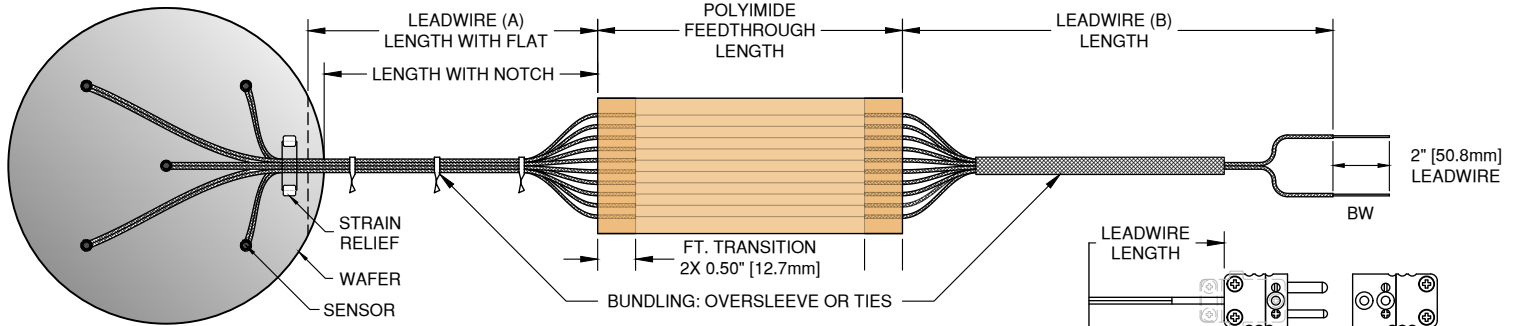
TCW-W [400, 600, 1200]

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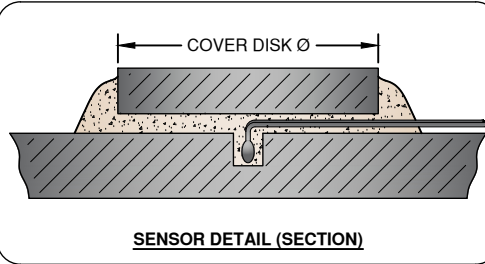
Rev.
1

TCW-E [400, 600, 1200]



HOLE DEPTH:

50% ±5% OF WAFER THICKNESS



SENSOR DETAIL (SECTION)

CODE	BONDING TYPE
EG	EMBEDDED - GROUNDED
EU	EMBEDDED - UNGROUNDED

CODE	WAFER GRADE
M	MECHANICAL GRADE
P	PRIME GRADE
SP	CUSTOMER SUPPLIED OR SP WAFER

CODE	WAFER Ø (THICKNESS) [NOTE 5]
050*	2" WITH FLAT (275±25 µm)*
075*	3" WITH FLAT (375±25 µm)*
100	100mm WITH FLAT (525±25 µm)
125	125mm WITH FLAT (625±25 µm)
150	150mm WITH FLAT (675±25 µm)
200	200mm WITH NOTCH (725±25 µm)
300	300mm WITH NOTCH (775±25 µm)
XXX	SPECIFY OTHER SIZE

CODE	WIRE TERMINATION
MP	MINI PLUG (220°C)
MPH	MINI PLUG WITH 8-CH DAQ HOUSING (50°C)
MJ	MINI JACK (220°C)
CMP	CERAMIC MINI PLUG (650°C)
CMJ	CERAMIC MINI JACK (650°C)
MDP	MALE D-SUB CONNECTOR (50°C)
FDP	FEMALE D-SUB CONNECTOR (50°C)
MHV	MALE UHV D-SUB CONNECTOR (250°C, 400°C)
FHV	FEMALE UHV D-SUB CONNECTOR (250°C, 400°C)
BW	BARE WIRE (WIRE LIMIT)
ST	SPADE TERMINAL (WIRE LIMIT)

CODE	MAX OPERATING TEMP. [NOTE 2]
4	400°C
6	600°C
12	1200°C

CONFIGURATION CODE

SEMI-150 : EU - SP 300 - 6 - 33 K 36 - S 1000 - 300 X2 - T 1200 - MHV - 4 T O

CODE	THERMOCOUPLE QUANTITY
#	# = TOTAL QUANTITY OF TC

CODE	THERMOCOUPLE TYPE
K	TYPE K: CHROMEL(+), ALUMEL(-)
T	TYPE T: COPPER(+), CONSTANTAN(-)
N	TYPE N: NICHROSIL(+), NISIL(-)
E	TYPE E: CHROMEL(+), CONSTANTAN(-)
R	TYPE R: PLATINUM 13% RHODIUM(+), PLATINUM(-)
S	TYPE S: PLATINUM 10% RHODIUM(+), PLATINUM(-)

CODE	WIRE GAUGE
36	36 AWG (0.127mm Ø)

CODE	"A" INSULATION MATERIAL
T	TEFLON (260°C)
F	FIBERGLASS (316°C)
P	POLYIMIDE (400°C)
S	SILICA (950°C)
Q	QUARTZ (1100°C)
C	CERAMIC (1204°C)

CODE	"A" LEAD LENGTH
#	# = LENGTH (mm)

CODE	VACUUM FEEDTHROUGH LENGTH
N	NONE
#	# = LENGTH (mm), ROUNDED TO NEAREST INCH

CODE	VACUUM FEEDTHROUGH QUANTITY
0 OR 1	(LEAVE BLANK)
X#	# = FEEDTHROUGH QUANTITY

CODE	"B" LENGTH BUNDLING
N	NONE
T	TIES
O	OVERSLEEVE

CODE	"A" LENGTH BUNDLING
N	NONE
T	TIES
O	OVERSLEEVE

CODE	STRAIN RELIEF
0	NONE
#	# = STRAIN RELIEF QUANTITY

CODE	"B" LEAD LENGTH
0	(LEAVE BLANK)
#	# = LENGTH (mm)

CODE	"B" INSULATION MATERIAL
N	NONE
T	TEFLON (260°C)
F	FIBERGLASS (316°C)
P	POLYIMIDE (400°C)
S	SILICA (950°C)
Q	QUARTZ (1100°C)
C	CERAMIC (1204°C)

CODE	VACUUM FEEDTHROUGH THICKNESS
0 OR 1	(LEAVE BLANK)
T#	# = TAPE LAYERS

NOTES:

- ALL STANDARD WAFERS ARE P-TYPE SILICON SUBSTRATES. OTHER SUBSTRATE MATERIALS MAY BE AVAILABLE UPON REQUEST.
- MAX OPERATING TEMPERATURE CODE IS AN ESTIMATE AND APPLIES TO THE WAFER/SENSING AREA ONLY.
- ACTUAL TEMPERATURE LIMIT IS SET BY THE LOWEST TEMPERATURE RATING OF THE SELECTED COMPONENTS. POLYIMIDE FEEDTHROUGHS ARE LIMITED TO 250°C.
- UNGROUNDED CONFIGURATION IS RECOMMENDED FOR APPLICATIONS SUBJECT TO ELECTRICAL INTERFERENCE
- * INDICATES OPTIONS NOT AVAILABLE IN OUR STANDARD WAFER SIZES AND THICKNESS. MAY BE AVAILABLE WITH CUSTOMER-SUPPLIED OR OTHER WAFERS ≥500 µm THICKNESS.



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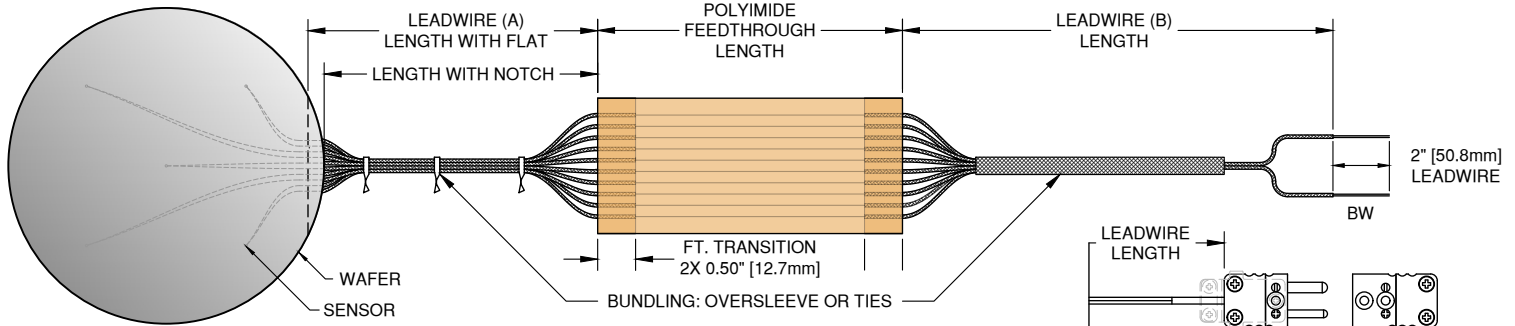
TCW-E [400, 600, 1200]

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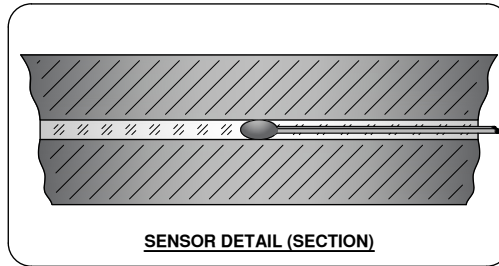
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TCB-H [400, 600, 1200]



WAFER SIZE	MAX OVERALL THICKNESS
2"	2.10 mm
3"	2.30 mm
100	2.60 mm
125	2.80 mm
150	2.90 mm
200	3.00 mm
300	3.10 mm



CODE	BONDING TYPE
HG	HIGH-TEMP BONDED - GROUND

CODE	WAFER GRADE
B	WAFER-TO-WAFER BONDED
SB	CUSTOMER SUPPLIED OR SP WAFER

CODE	WAFER Ø
050	2" WITH FLAT
075	3" WITH FLAT
100	100mm WITH FLAT
125	125mm WITH FLAT
150	150mm WITH FLAT
200	200mm WITH NOTCH
300	300mm WITH NOTCH
XXX	SPECIFY OTHER SIZE

CODE	WIRE TERMINATION
MP	MINI PLUG (220°C)
MPH	MINI PLUG WITH 8-CH DAQ HOUSING (50°C)
MJ	MINI JACK (220°C)
CMP	CERAMIC MINI PLUG (650°C)
CMJ	CERAMIC MINI JACK (650°C)
MDP	MALE D-SUB CONNECTOR (50°C)
FDP	FEMALE D-SUB CONNECTOR (50°C)
MHV	MALE UHV D-SUB CONNECTOR (250°C, 400°C)
FHV	FEMALE UHV D-SUB CONNECTOR (250°C, 400°C)
BW	BARE WIRE (WIRE LIMIT)
ST	SPADE TERMINAL (WIRE LIMIT)

CODE	MAX OPERATING TEMP. [NOTE 3]
4	400°C
6	600°C

SEMI-160 : HG - B 200 - 6 - 5 K 36 - S 300 - N - N - N - FHV - 1 T N

CODE	THERMOCOUPLE QUANTITY
#	# = TOTAL QUANTITY OF TC

CODE	THERMOCOUPLE TYPE
K	TYPE K: CHROMEL(+), ALUMEL(-)
N	TYPE N: NICROSIL(+), NISIL(-)
E	TYPE E: CHROMEL(+), CONSTANTAN(-)

CODE	WIRE GAUGE
30	30 AWG (0.254mm Ø)
36	36 AWG (0.127mm Ø)

CODE	"A" INSULATION MATERIAL
T	TEFLON (260°C)
F	FIBERGLASS (316°C)
P	POLYIMIDE (400°C)
S	SILICA (950°C)
Q	QUARTZ (1100°C)
C	CERAMIC (1204°C)

CODE	"A" LEAD LENGTH
#	# = LENGTH (mm)

CODE	VACUUM FEEDTHROUGH LENGTH
N	NONE
#	# = LENGTH (mm), ROUNDED TO NEAREST INCH

CODE	VACUUM FEEDTHROUGH QUANTITY
X#	# = FEEDTHROUGH QUANTITY

CODE	VACUUM FEEDTHROUGH THICKNESS
T#	# = TAPE LAYERS

CODE	"B" LENGTH BUNDLING
N	NONE
T	TIES
O	OVERSLEEVE

CODE	"A" LENGTH BUNDLING
N	NONE
T	TIES
O	OVERSLEEVE

CODE	STRAIN RELIEF
0	NONE
1	STRAIN RELIEF BRACKET

CODE	"B" LEAD LENGTH
0	(LEAVE BLANK)
#	# = LENGTH (mm)

CODE	"B" INSULATION MATERIAL
N	NONE
T	TEFLON (260°C)
F	FIBERGLASS (316°C)
P	POLYIMIDE (400°C)
S	SILICA (950°C)
Q	QUARTZ (1100°C)
C	CERAMIC (1204°C)

NOTES:

- ALL STANDARD WAFERS ARE P-TYPE SILICON SUBSTRATES. OTHER SUBSTRATE MATERIALS MAY BE AVAILABLE UPON REQUEST.
- GROUNDING THERMOCOUPLE CONFIGURATION
- MAX OPERATING TEMPERATURE CODE IS AN ESTIMATE AND APPLIES TO THE WAFER/SENSING AREA ONLY.
- ACTUAL TEMPERATURE LIMIT IS SET BY THE LOWEST TEMPERATURE RATING OF THE SELECTED COMPONENTS. POLYIMIDE FEEDTHROUGHS ARE LIMITED TO 260°C.



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TCB-H [400, 600, 1200]

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