Product/process change notification

PCN N° 2022-082-A

Dear customer,

Please find attached our Infineon Technologies AG PCN:

Introduction of an additional assembly and final test location at Huayi Microelectronics Co., Ltd (HYME) for CoolMOS™ for package TO247-3

Important information for your attention:

- Please respond to this PCN by indicating your decision on the approval form, sign it and return to your sales partner before **2022-12-15**
- Infineon aligns with the widely recognized JEDEC STANDARD **"JESD46",** which stipulates: **"Lack of acknowledgement of the PCN within 30 days constitutes acceptance of the change."**

Your prompt reply will help Infineon to assure a smooth and well-executed transition. If Infineon does not hear from your side by the due date, we will assume your full acceptance to this proposed change and its implementation.

Your attention and response to this matter is greatly appreciated.

On 16 April 2020, Infineon acquired Cypress.
We are now in the process of merging and consolidating our tools and processes for PCN, Information Notes, Errata and Product Discontinuance.
For further details, please visit our website:
https://www.infineon.com/cms/en/about-infineon/company/cypress-acquisition/

Infineon Technologies AG
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Registered office Neubiberg Commercial register Amtsgericht München HRB 126492

Product/process change notification

PCN N° 2022-082-A

▶ Products affected

Please refer to attached affected product list 1_cip22082_a

▶ Detailed change information

Subject

Introduction of an additional assembly and final test location at Huayi Microelectronics Co., Ltd (HYME) for CoolMOS™ for package TO247-3.

Reason

Expansion of assembly and test location to assure continuity and increase of supply.

Description

	Old	New
Manufacturing Assembly Site	ATX (Weihai) Inc., China Tongfu Microelectronics Co., Ltd., (TFME) in Nantong, China	ATX (Weihai) Inc., China Tongfu Microelectronics Co., Ltd., (TFME) in Nantong, China Huayi Microelectronics Co., Ltd (HYME) in Xi'An, China

▶ Product identification

Traceability via Baunumber, Lotnumber, date code and Marking (refer to attached 3_cip22082_a)

▶ Impact of change

NO change on electrical and thermal performance
NO impact on the device reliability as proven via product qualification.
NO impact on the electrical parameters and device processability at customer end

- The package outline remains unchanged
- Product datasheet remain unchanged

▶ Attachments

1_cip22082_a	affected product list
2_cip22082_a	qualification test report
3_cip22082_a	customer information package

▶ Time schedule

■ Final qualification report	available
■ First samples available	on request
■ Intended start of delivery	2023-02-25, or earlier, depending on customer's approval

If you have any questions, please do not hesitate to contact your local sales office.

PCN 2022-082-A

Introduction of an additional assembly and final test location at Huayi Microelectronics Co., Ltd (HYME) for for CoolMOSTM for package TO247-3

Affected products sold to DIGI-KEY (4002348)

Sales name	SP number	OPN	Package	Customer part number
IPW60R024P7	SP001866180	IPW60R024P7XKSA1	PG-TO247-3	IPW60R024P7XKSA1
IPW60R037P7	SP001606060	IPW60R037P7XKSA1	PG-TO247-3	IPW60R037P7XKSA1
IPW60R040C7	SP001296190	IPW60R040C7XKSA1	PG-TO247-3	IPW60R040C7XKSA1
IPW60R045P7	SP001866186	IPW60R045P7XKSA1	PG-TO247-3	IPW60R045P7XKSA1
IPW60R060C7	SP001385020	IPW60R060C7XKSA1	PG-TO247-3	IPW60R060C7XKSA1
IPW60R060P7	SP001647042	IPW60R060P7XKSA1	PG-TO247-3	IPW60R060P7XKSA1
IPW60R070C6	SP000645060	IPW60R070C6FKSA1	PG-TO247-3	IPW60R070C6FKSA1
IPW60R070P6	SP001114660	IPW60R070P6XKSA1	PG-TO247-3	IPW60R070P6XKSA1
IPW60R075CP	SP000358192	IPW60R075CPFKSA1	PG-TO247-3	IPW60R075CPFKSA1
IPW60R080P7	SP001647040	IPW60R080P7XKSA1	PG-TO247-3	IPW60R080P7XKSA1
IPW60R099C6	SP000641908	IPW60R099C6FKSA1	PG-TO247-3	IPW60R099C6FKSA1
IPW60R099C7	SP001298004	IPW60R099C7XKSA1	PG-TO247-3	IPW60R099C7XKSA1
IPW60R099CP	SP000067147	IPW60R099CPFKSA1	PG-TO247-3	IPW60R099CPFKSA1
IPW60R099P6	SP001114658	IPW60R099P6XKSA1	PG-TO247-3	IPW60R099P6XKSA1
IPW60R099P7	SP001647038	IPW60R099P7XKSA1	PG-TO247-3	IPW60R099P7XKSA1
IPW60R120C7	SP001385060	IPW60R120C7XKSA1	PG-TO247-3	IPW60R120C7XKSA1
IPW60R120P7	SP001658382	IPW60R120P7XKSA1	PG-TO247-3	IPW60R120P7XKSA1
IPW60R125C6	SP000641912	IPW60R125C6FKSA1	PG-TO247-3	IPW60R125C6FKSA1
IPW60R125CP	SP000088489	IPW60R125CPFKSA1	PG-TO247-3	IPW60R125CPFKSA1
IPW60R125P6	SP001114656	IPW60R125P6XKSA1	PG-TO247-3	IPW60R125P6XKSA1
IPW60R160C6	SP000652798	IPW60R160C6FKSA1	PG-TO247-3	IPW60R160C6FKSA1
IPW60R160P6	SP001017092	IPW60R160P6FKSA1	PG-TO247-3	IPW60R160P6FKSA1
IPW60R165CP	SP000095483	IPW60R165CPFKSA1	PG-TO247-3	IPW60R165CPFKSA1
IPW60R180C7	SP001296232	IPW60R180C7XKSA1	PG-TO247-3	IPW60R180C7XKSA1
IPW60R180P7	SP001606058	IPW60R180P7XKSA1	PG-TO247-3	IPW60R180P7XKSA1
IPW60R190C6	SP000621160	IPW60R190C6FKSA1	PG-TO247-3	IPW60R190C6FKSA1
IPW60R190E6	SP000797384	IPW60R190E6FKSA1	PG-TO247-3	IPW60R190E6FKSA1
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IPW60R280P6	SP001017086	IPW60R280P6FKSA1	PG-TO247-3	IPW60R280P6FKSA1
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IPW65R065C7	SP001080116	IPW65R065C7XKSA1	PG-TO247-3	IPW65R065C7XKSA1
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IPW65R080CFD	SP000745036	IPW65R080CFDFKSA1	PG-TO247-3	IPW65R080CFDFKSA1
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IPW65R150CFD	SP000907038	IPW65R150CFDFKSA1	PG-TO247-3	IPW65R150CFDFKSA1
IPW65R190C7	SP001080142	IPW65R190C7XKSA1	PG-TO247-3	IPW65R190C7XKSA1
IPW80R280P7	SP001422758	IPW80R280P7XKSA1	PG-TO247-3	IPW80R280P7XKSA1

IPW80R360P7	SP001633520	IPW80R360P7XKSA1	PG-TO247-3	IPW80R360P7XKSA1
IPW90R500C3	SP002548900	IPW90R500C3XKSA1	PG-TO247-3	IPW90R500C3XKSA1
SPW11N80C3	SP000013703	SPW11N80C3FKSA1	PG-TO247-3	SPW11N80C3FKSA1
SPW15N60C3	SP000014530	SPW15N60C3FKSA1	PG-TO247-3	SPW15N60C3FKSA1
SPW16N50C3	SP000014472	SPW16N50C3FKSA1	PG-TO247-3	SPW16N50C3FKSA1
SPW17N80C3	SP000013369	SPW17N80C3FKSA1	PG-TO247-3	SPW17N80C3FKSA1
SPW20N60C3	SP000013729	SPW20N60C3FKSA1	PG-TO247-3	SPW20N60C3FKSA1
SPW20N60CFD	SP000014535	SPW20N60CFDFKSA1	PG-TO247-3	SPW20N60CFDFKSA1
SPW24N60C3	SP000014695	SPW24N60C3FKSA1	PG-TO247-3	SPW24N60C3FKSA1
SPW35N60C3	SP000014970	SPW35N60C3FKSA1	PG-TO247-3	SPW35N60C3FKSA1
SPW47N60C3	SP000013953	SPW47N60C3FKSA1	PG-TO247-3	SPW47N60C3FKSA1

3cip PCN_2022-082-A

Introduction of an additional assembly and final test location at HYME for CoolMOS™ for package TO247-3.

Table of Contents

3cip PCN_2021-165-A
Bill Of Materials Comparison

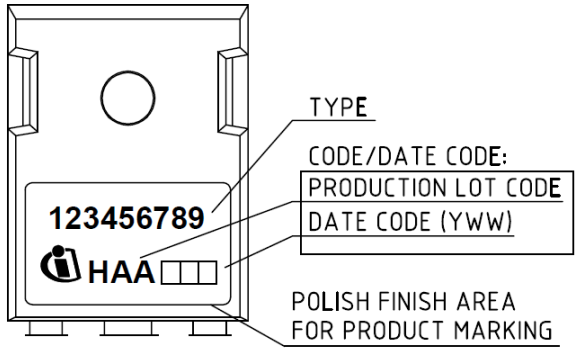
BOM comparison

	ATXWH	TFME	HYME
Die attach	Sn25Ag10Sb	Sn25Ag10Sb	Sn25Ag10Sb
Leadframe base material	Copper	Copper	Copper
Bonding wire	Al, 75 to 500um	Al, 75 to 500um	Al, 75 to 500um
Molding compound	EME E500 HA	EME E500 HA	EME E500 HA
Plating final surface	Sn	Sn	Sn

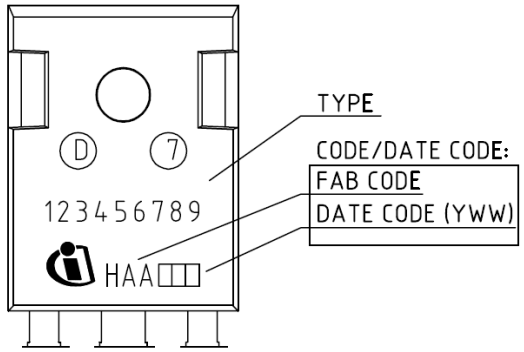
3cip PCN_2022-082-A
Marking Pattern Comparison

TO247-3

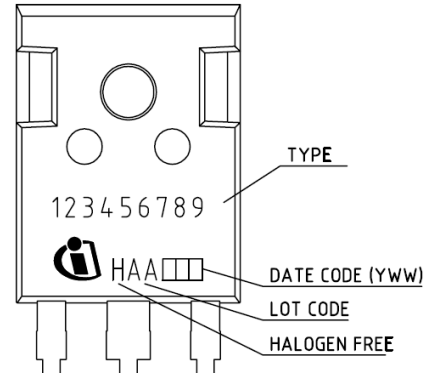
ATXWH



TFME

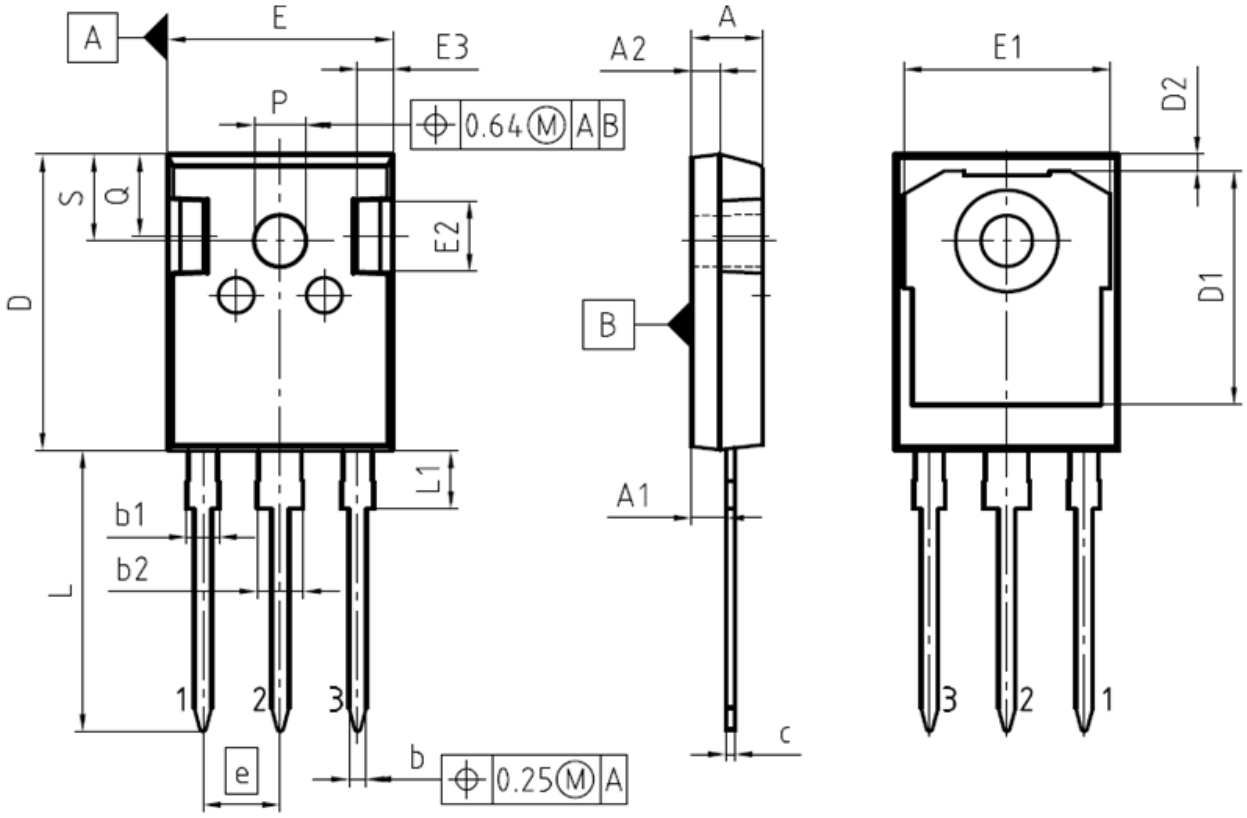


HYME

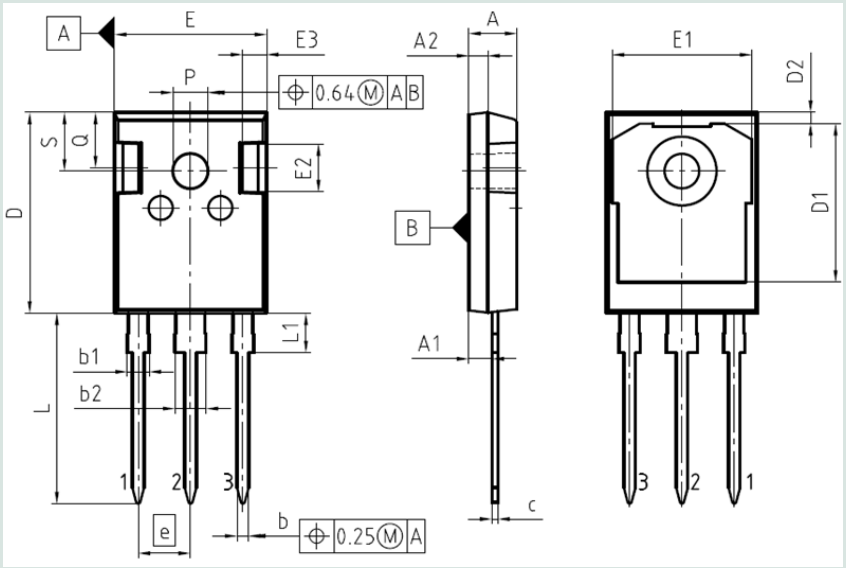
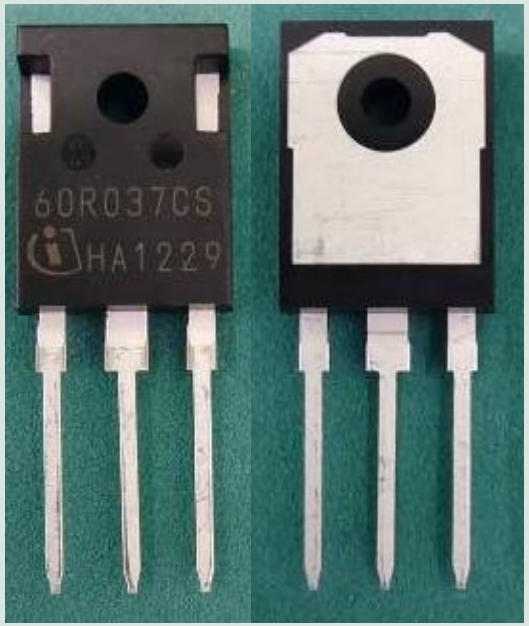


3cip PCN_ 2022-082-A
TO247-3 POD Comparison

	IFX Data sheet		TO247-3 (TFME)		TO247-3 (ATXWH)		TO247-3 (HYME)	
Symbol	[mm]		[mm]		[mm]		[mm]	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
A	4.83	5.21	4.90	5.10	4.83	5.21	4.83	5.20
A1	2.27	2.54	2.31	2.51	2.29	2.54	2.27	2.54
A2	1.85	2.16	1.90	2.10	1.91	2.16	1.85	2.16
b	1.07	1.33	1.16	1.26	1.07	1.33	1.07	1.33
b1	1.90	2.41	1.90	2.25	1.91	2.41	1.90	2.41
b2	2.87	3.38	2.87	3.25	2.87	3.38	2.87	3.38
c	0.55	0.68	0.59	0.66	0.55	0.68	0.55	0.68
D	20.80	21.10	20.90	21.10	20.80	21.10	20.80	21.10
D1	16.25	17.65	16.25	16.85	16.25	17.65	16.25	17.65
D2	0.95	1.35	1.05	1.35	0.95	1.25	0.95	1.35
E	15.70	16.13	15.70	15.90	15.75	16.13	15.70	16.13
E1	13.10	14.15	13.10	13.50	13.10	14.15	13.10	14.15
E2	3.68	5.10	4.90	5.10	3.68	5.10	3.68	5.10
E3	1.00	2.60	2.40	2.60	1.00	1.90	1.00	2.60
e	5.44		5.44 BSC		5.44 BSC		5.44 (BSC)	
N	3		3		3		3	
L	19.80	20.32	19.80	20.10	19.81	20.32	19.80	20.32
L1	4.10	4.47	-	4.30	4.10	4.40	4.10	4.47
ΘP	3.50	3.70	3.50	3.70	3.51	3.65	3.50	3.70
Q	5.49	6.00	5.60	6.00	5.50	6.00	5.49	6.00
S	6.04	6.30	6.14	6.16	6.04	6.30	6.04	6.30

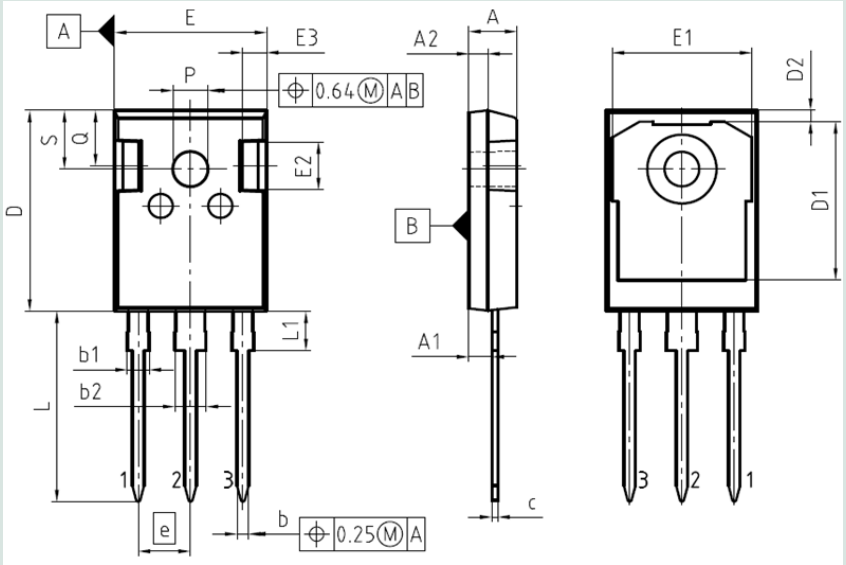


Physical unit photo- TFME TO247-3

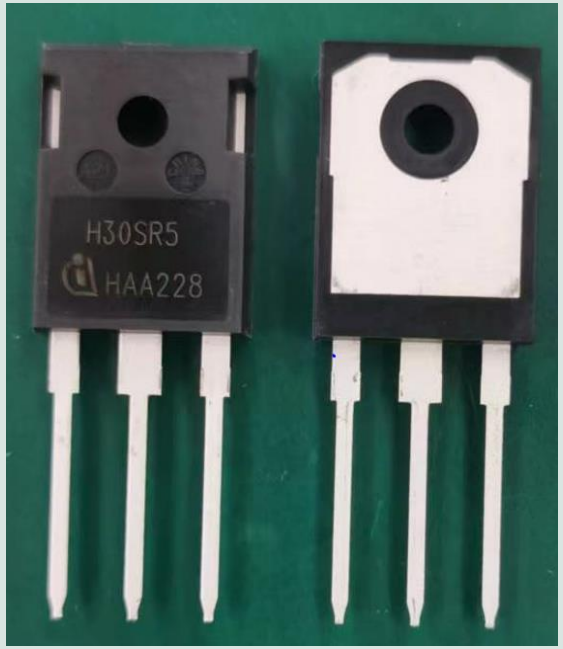
POD	Physical picture
	

Physical unit photo- ATXWH TO247-3

POD

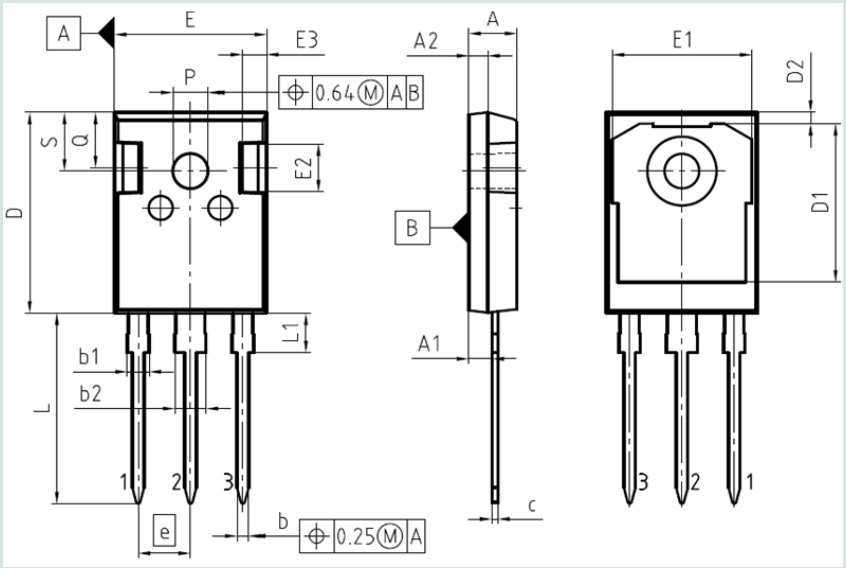


Physical picture

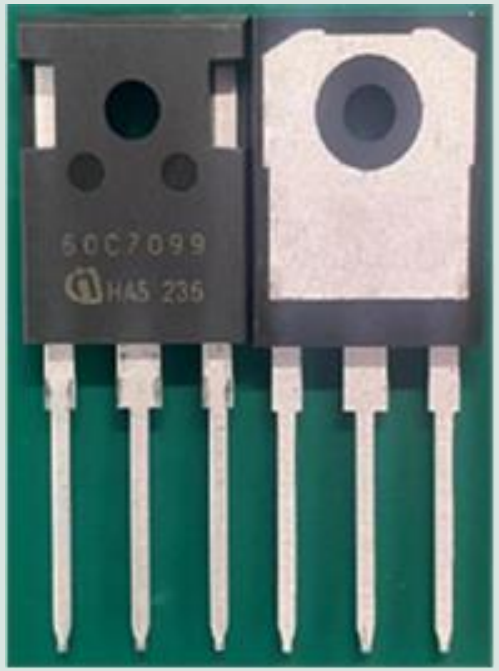


Physical unit photo- HYME TO247-3

POD



Physical picture



TO247-3 physical unit measurement(mm) on critical dimension from all sites.

	HYME									ATXWH									TFME								
No.	A	b	b1	b2	c	D	E	L	L1	A	b	b1	b2	c	D	E	L	L1	A	b	b1	b2	c	D	E	L	L1
1	5.025	1.160	2.026	3.037	0.657	21.003	15.804	20.002	4.144	4.990	1.240	2.110	3.100	0.620	20.950	15.910	20.080	4.270	4.992	1.195	2.114	3.178	0.624	21.035	15.834	19.934	4.182
2	4.996	1.179	2.051	3.045	0.614	20.958	15.827	19.922	4.101	5.000	1.220	2.130	3.110	0.610	20.930	15.910	20.010	4.260	5.002	1.191	2.101	3.149	0.623	21.002	15.837	19.924	4.175
3	5.040	1.184	2.064	3.051	0.600	21.001	15.784	19.982	4.138	5.010	1.230	2.120	3.100	0.630	20.940	15.930	20.000	4.250	5.012	1.201	2.101	3.150	0.618	21.001	15.839	19.967	4.156
4	5.032	1.180	2.031	3.035	0.621	21.002	15.814	19.981	4.141	5.010	1.220	2.140	3.130	0.610	20.920	15.910	20.050	4.280	5.031	1.208	2.112	3.143	0.616	21.011	15.842	19.977	4.205
5	5.017	1.174	2.042	3.027	0.634	21.004	15.776	19.974	4.152	5.020	1.240	2.110	3.120	0.620	20.940	15.920	20.040	4.270	4.991	1.187	2.136	3.123	0.619	20.995	15.838	19.949	4.187
6	5.023	1.193	2.021	3.031	0.611	21.002	15.821	19.995	4.175	4.980	1.210	2.100	3.100	0.620	20.930	15.880	20.100	4.270	4.984	1.196	2.124	3.131	0.612	21.019	15.872	19.951	4.174
7	4.982	1.193	2.075	3.078	0.629	21.007	15.826	19.987	4.153	4.990	1.210	2.100	3.100	0.620	20.920	15.890	20.090	4.270	4.987	1.199	2.130	3.164	0.623	21.015	15.844	19.978	4.168
8	4.913	1.187	2.056	3.034	0.609	20.932	15.737	19.981	4.132	4.990	1.200	2.120	3.100	0.630	20.920	15.870	20.110	4.280	5.001	1.204	2.112	3.158	0.618	20.988	15.837	19.968	4.152
9	5.024	1.190	2.041	3.024	0.617	20.974	15.791	19.995	4.153	5.000	1.200	2.110	3.090	0.620	20.930	15.890	20.110	4.280	4.971	1.204	2.131	3.155	0.612	20.995	15.848	19.940	4.201
10	5.008	1.210	2.032	3.021	0.612	21.041	15.841	19.980	4.172	5.010	1.200	2.070	3.100	0.630	20.930	15.880	20.080	4.270	5.021	1.204	2.129	3.146	0.615	21.020	15.835	19.927	4.145
11	5.042	1.203	2.042	3.023	0.624	21.035	15.821	19.988	4.145	4.990	1.220	2.110	3.100	0.620	20.950	15.930	20.010	4.260	4.990	1.181	2.138	3.126	0.623	21.023	15.849	19.988	4.175
12	4.986	1.203	2.055	3.034	0.630	21.062	15.806	19.974	4.172	5.000	1.210	2.100	3.110	0.630	20.940	15.920	20.000	4.250	5.025	1.185	2.108	3.165	0.618	21.025	15.841	19.926	4.124
13	4.997	1.191	2.058	3.031	0.622	21.050	15.812	19.912	4.144	5.020	1.210	2.090	3.100	0.610	20.960	15.940	20.020	4.260	5.031	1.193	2.105	3.147	0.625	21.000	15.855	19.925	4.168
14	5.051	1.193	2.055	3.028	0.612	21.058	15.822	19.985	4.180	5.000	1.200	2.080	3.110	0.620	20.950	15.930	20.020	4.250	5.030	1.206	2.118	3.150	0.612	21.016	15.861	19.962	4.201
15	5.042	1.207	2.049	3.022	0.624	21.046	15.821	19.973	4.175	5.010	1.200	2.070	3.110	0.630	20.960	15.920	20.010	4.260	4.981	1.200	2.125	3.139	0.613	20.993	15.854	19.978	4.168
16	4.988	1.216	2.058	3.032	0.606	21.053	15.835	19.989	4.170	4.990	1.220	2.110	3.100	0.620	20.950	15.900	19.960	4.250	5.019	1.198	2.130	3.191	0.628	21.025	15.845	19.939	4.175
17	4.990	1.222	2.066	3.033	0.614	21.063	15.835	19.982	4.124	5.000	1.210	2.100	3.110	0.630	20.970	15.920	19.960	4.230	5.028	1.200	2.102	3.150	0.610	21.002	15.839	19.958	4.189
18	5.004	1.223	2.033	3.029	0.618	21.039	15.837	19.986	4.138	4.990	1.210	2.110	3.100	0.620	20.960	15.930	19.970	4.240	5.010	1.191	2.136	3.147	0.615	21.019	15.852	19.988	4.112
19	4.965	1.204	2.052	3.024	0.614	21.034	15.873	19.975	4.137	4.990	1.220	2.100	3.100	0.620	20.940	15.910	19.960	4.250	4.994	1.204	2.108	3.190	0.614	20.967	15.841	19.970	4.174
20	5.021	1.193	2.021	3.021	0.615	21.015	15.781	19.872	4.131	5.000	1.220	2.100	3.100	0.610	20.950	15.920	19.970	4.240	5.005	1.199	2.106	3.137	0.623	21.009	15.832	19.904	4.136
21	5.037	1.187	2.031	3.022	0.617	21.011	15.792	19.977	4.147	5.040	1.230	2.120	3.120	0.650	20.960	15.990	20.010	4.220	5.016	1.195	2.110	3.160	0.618	20.996	15.854	19.978	4.148
22	5.014	1.201	2.028	3.031	0.619	21.020	15.812	19.978	4.138	5.050	1.220	2.130	3.130	0.640	20.980	16.000	20.030	4.230	5.017	1.193	2.109	3.136	0.622	21.034	15.845	19.903	4.192
23	5.012	1.197	2.015	3.015	0.619	21.019	15.811	19.949	4.124	5.060	1.230	2.150	3.120	0.650	20.960	16.010	20.020	4.240	4.993	1.208	2.139	3.184	0.618	21.025	15.852	19.974	4.163
24	4.984	1.204	2.022	3.021	0.617	20.984	15.784	19.975	4.152	5.030	1.220	2.140	3.140	0.630	20.970	15.980	20.010	4.230	4.987	1.198	2.128	3.178	0.610	20.987	15.842	19.919	4.185
25	4.991	1.212	2.017	3.024	0.615	21.012	15.820	19.981	4.161	5.050	1.230	2.120	3.140	0.640	20.980	15.990	20.020	4.240	5.014	1.199	2.108	3.154	0.618	21.019	15.839	19.979	4.168
26	5.034	1.211	2.024	3.027	0.620	21.034	15.831	19.872	4.111	5.010	1.210	2.090	3.090	0.600	20.900	15.940	20.010	4.200	5.004	1.186	2.128	3.158	0.618	20.998	15.840	19.965	4.198
27	5.028	1.195	2.014	3.018	0.619	21.006	15.786	19.894	4.142	5.000	1.200	2.080	3.090	0.610	20.920	15.950	20.060	4.180	5.022	1.205	2.109	3.165	0.620	21.015	15.862	19.993	4.185
28	5.002	1.207	2.012	3.020	0.620	21.042	15.749	19.907	4.138	4.990	1.210	2.090	3.080	0.600	20.910	15.950	19.990	4.160	4.985	1.197	2.134	3.157	0.628	21.015	15.853	19.942	4.165
29	5.011	1.212	2.007	3.012	0.622	20.991	15.768	19.879	4.132	5.010	1.200	2.090	3.090	0.590	20.920	15.940	20.050	4.200	5.006	1.204	2.118	3.142	0.614	20.985	15.838	19.911	4.178
30	4.986	1.202	2.011	3.017	0.617	20.987	15.812	19.863	4.151	4.980	1.210	2.090	3.080	0.600	20.930	15.930	20.000	4.170	4.981	1.201	2.112	3.171	0.623	20.995	15.839	19.929	4.201

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Qualification Test Report

PCN N^{o} 2022-082-A **Date: 2022-09-08**

Introduction of an additional assembly and final test location at Huayi Microelectronics Co., Ltd (HYME) for CoolMOS™ for package TO247-3

Reason for choosing the following test vehicles:

SPW47N65C3	C3 technology in TO247-3, big chip size, THD
IPW60R280P6	P6 technology in TO247-3, small chip size, THD
IPW65R420CFD	CFD technology in TO247-3, small chip size, THD
IPW80R280P7	P7 technology in TO247-3, small chip size, THD
IPW60R165CP	CP technology in TO247-3, medium chip size, THD

Scope of qualification: All CoolMOS™ products in TO247-3 assembled at HYME

Assessment of Q-Results: pass industrial grade according to JEDEC

Stress test	Abbreviation	Test conditions	Readout	SPW47N65C3	IPW60R280P6	IPW65R420CFD	IPW80R280P7	IPW60R165CP
				fails / stressed	fails / stressed	fails / stressed	fails / stressed	fails / stressed
MSL Preconditioning JESD22-A113	**PC**	MSL and 3 x reflow at x°C		n.a.	n.a.	n.a.	n.a.	n.a.
Temperature Cycling JESD22-A104	**TC***	-55°C - +150°C	1000 cyc	0 / 77	0 / 77	0 / 77	0 / 77	0 / 77
Unbiased Temperature/Humidity JESD22-A118	**UHAST***	Ta = 130°C, RH = 85%	96 h	0 / 77	0 / 77	0 / 77	0 / 77	0 / 77
High Humidity High Temp. Reverse Bias JESD22-A101	**H3TRB***	T = 85°C RH = 85% V = 100 V	1000 h	0 / 77	0 / 77	0 / 77	0 / 77	0 / 77
High Temperature Reverse Bias JESD22-A108	**HTRB***	Ta ≥ 150°C V ≥ 80% Vdss max	1000 h	0 / 77	0 / 77	0 / 77	0 / 77	0 / 77
High Temperature Gate stress JESD22-A108	**HTGS***	Ta = 150°C Vg = ±20 V	1000 h	0 / 77	0 / 77	0 / 77	0 / 77	0 / 77
Intermitted Operational Life Test MIL-STD 750/Meth.1037	**IOL***	Delta T = 100 K	15000 cyc	0 / 77	0 / 77	0 / 77	0 / 77	0 / 77
ESD human body model JEDEC JS-001	**ESD**	HBM		Class 3A (4000V to < 8000V)	Class 1C (1000V to < 2000V)	Class 1C (1000V to < 2000V)	Class 2 (2000V to < 4000V)	Class 2 (2000V to < 4000V)
ESD charge device model JEDEC JS-002	**ESD**	CDM		Class C3 (>1000V)	Class C3 (>1000V)	Class C3 (>1000V)	Class C3 (>1000V)	Class C3 (>1000V)
Resistance to Solder Heat JESD22 B106	**RSH**	3x Solder dipping @ 270°C, 7s (for Pb free)		0 / 22	-	0 / 22	-	0 / 22
Lead Solderability MIL-STD-202 Method 208, JESD22-B102E	**SD**	92°C** / 100% rh 5s / 1 x [SD] @ 245°C 8 hrs steam aging	visual inspection	0 / 15	-	0 / 15	-	0 / 15
Electrical Parameter Assessment JESD86	**ED**	Ta = -55°C/25°C/150°C		0 / 30	0 / 30	0 / 30	0 / 30	0 / 30

*** PC is done only for SMD Packages before UHAST, TC, IOL, HTGS, HTRB and H3TRB stress tests**

**** depends on the altitude of the test location**