

> Product Change Notification

Product group:	Power Module	Rev.: 00
No.: PCN 16-058	Release of 300mm Wafer Size for Infineon IGBT4 1200V Low Power and High Speed 3 IGBT's for all Power Modules	

Subject of change: Release of 300mm wafer size for Infineon IGBT4 1200V Low Power and High Speed 3 IGBT's as alternative delivery form.

SEMIKRON product type: All power modules using Infineon IGBT4 1200V Low Power or High Speed 3 IGBT's. For a detailed overview of products affected see the attached product listing.

Description of change: Introduction of 300mm wafer size as an alternative delivery form for IGBT4 1200V Low Power and High Speed 3 IGBT's.

Reason for change: Supplier is introducing the 300mm wafer size as an additional delivery form for the IGBT4 1200V Low Power and High Speed 3 IGBT's to support the worldwide demand. To ensure future continuous supply SEMIKRON is releasing this new wafer size as alternative delivery format for all power modules using this IGBT technology.

Identification of change: The product part number and description will remain unchanged, the changed product can be identified via the product date code.

Time schedule for change: 01.12.2016

Supporting documentation: Availability on request

Author: **Werner Obermaier**

→Please respond to this PCN by returning the attached customer approval form to your local sales partner.

→According to the IEC Standard JESD46 no response to this PCN within 30 days after receipt constitutes acceptance of the change.

Qualification Plan:

No.	Test	IGBT4 1200V LoPo 300mm Wafer*
1	Dynamic characteristics [E_{on} , E_{off} , dV_{CE}/dt , $t_{d(on)}$, $t_{d(off)}$, t_r , t_f ; $T=25^{\circ}C/150^{\circ}C$]	PASSED (/3)
2	Short-circuit Safe Operating Test: [$V_{DC}=800V$; $T=25^{\circ}C/150^{\circ}C$; $t_{sc}=10\mu s$]	PASSED (/2)
3	High temperature storage ** [$T=150^{\circ}C$; $t=1000h$]	Nov. 2016 (/3)
4	Low temperature storage ** [$T=-40^{\circ}C$; $t=1000h$]	Nov. 2016 (/2)
5	Thermal cycling ** [500 cycles; $T=-50^{\circ}C \dots 150^{\circ}C$]	Dec. 2016 (/2)
6	High temperature reverse bias (HTRB) ** [$T_{vjmax}=95\% T_{jmax}$; $V_{CE}=95\% V_{CEnom}=1140V$; $t=1000h$]	Nov. 2016 (/20)
7	High temperature gate stress (HTGS) ** [$T_{vjmax}=175^{\circ}C$; $V_{GE}=\pm 20V$; $t=1000h$]	Nov. 2016 (/4)
8	Power cycling [$\Delta T=70K$; DC; $T_{jmin}=80^{\circ}C$]	Dec. 2016 (/4)
9	High temperature, high humidity reverse bias (H3TRB) ** [$T=85^{\circ}C$; $rH=85\%$; $V_{CE}=960V$; $t=1000h$]	Dec. 2016 (/20)

*) quantity based on modules under test

***) based on IGBT4 1200V MePo 300mm Wafer qualification

List of affected products – sorted by Product Description:

Order Number:	Product Description:	Order Number:	Product Description:
21920490	SEMiX105GD12T4	24915290	SK 75 GAL 12T4
21920290	SEMiX155GD12T4	24916340	SK 75 GAL 12T4
27890112	SEMiX202GB12T4s	24915300	SK 75 GAR 12T4
27890122	SEMiX302GB12T4s	24914920	SK 75 GB 12T4 T
27890145	SEMiX453GAL12T4s	24914790	SK 75 GD 12T4 T
27890146	SEMiX453GB12T4s	24919730	SK 95 GAB 06 UF
27890160	SEMiX604GB12T4s	24920560	SK100FLI12F4TF1
27890162	SEMiX604GB12T4v6	24920560	SK100FLI12F4TF1
24914870	SK 10 DGD L 12T4 ET	24920361	SK100TMLI12F4TD1p
24914830	SK 10 GD 12T4 ET	24920181	SK10GD12T4ETp
24917000	SK 10 GHR 12T4 II	24920021	SK150TMLI12F4Tp
24914930	SK 100 GB 12T4 T	24920340	SK160TMLI12F4TF1
24914780	SK 100 GD 12T4 T	24920370	SK161TMLI12F4TF1
24914520	SK 100 GH 12T4 T	24919781	SK25DGD12T4Tp
24920240	SK 100 GH 12T4TYK	24919631	SK25GD12T4ETp
24919720	SK 120 GB 12F4 T	24919891	SK35DGD12T4Tp
24914880	SK 15 DGD L 12T4 ET	24920481	SK35GAMA12T4SCp
24920050	SK 15 DGD L 12T4 ETK	24920811	SK35GD12T4ETp
24914840	SK 15 GD 12T4 ET	24920041	SK35MLI12T4p
24915340	SK 150 BGA 12T4	24920161	SK40DGRT12F4SCp
24920230	SK 150 DGL 12T4	24920330	SK40GLEF12F4TF1
24914810	SK 25 DGD L 12T4 T	24920460	SK41GLEF12F4TF1
24920140	SK 25 GAR 12F4 TSC	24919181	SK50GD12T4Tp
24914890	SK 25 GB 12T4	24919810	SK50LLE12F4TpF0
24914850	SK 25 GD 12T4 ET	24920011	SK70MLI12T4Tp
24917100	SK 25 GH 12T4	24919341	SK75GD12T4Tp
24918530	SK 35 BGB 12T4	24920170	SK80GD12F4T
24914800	SK 35 DGD L 12T4 T	24919930	SK80TMLI12F4TF0H
24915850	SK 35 GAL 12T4	24920111	SK80TMLI12F4Tp
24915860	SK 35 GAR 12T4	24919800	SK80TMLI12F4TpF0
24914900	SK 35 GB 12T4	24920030	SK81TMLI12F4TF0
24915310	SK 35 GD 12T4	07916600	SKD 116/12-L105
24914860	SK 35 GD 12T4 ET	07916640	SKD 116/12-L140
24918360	SK 35 GLF 12T4 T	07916610	SKD 116/16-L105
24914820	SK 50 DGD L 12T4 T	07916650	SKD 116/16-L140
24914910	SK 50 GB 12T4 T	07916620	SKD 146/12-L105
24914940	SK 50 GD 12T4 T	07916660	SKD 146/12-L140 T4
24915220	SK 50 GH 12T4 T	07916630	SKD 146/16-L105
24915330	SK 75 BGA 12T4	07916670	SKD 146/16-L140 T4

Order Number:	Product Description:	Order Number:	Product Description:
07919320	SKD 146/16-L140T4T	25241213	SKiiP 24GB12T4V1
07916590	SKD146/16L140T4	25231420	SKiiP 24NAB12T4V1
21916830	SKD50GAL12T4D	25261420	SKiiP 24NAB12T4V1
07916680	SKDH 116/08-L105	25231560	SKiiP 24NAB12T4V10
07916690	SKDH 116/12-L105	25238100	SKiiP 24NAB12T4V2
07916730	SKDH 116/12-L140	20338450	SKiiP 25AC12T4T10
07916700	SKDH 116/16-L105	25231550	SKiiP 25AC12T4V1
07916740	SKDH 116/16-L140	25231700	SKiiP 25BBS12T4V1
07916710	SKDH 146/12-L105	25232670	SKiiP 26 AC12T4V2
07916750	SKDH 146/12-L140	25231400	SKiiP 26AC12T4V1
07916720	SKDH 146/16-L105	25231620	SKiiP 26AC12T4V1
07916760	SKDH 146/16-L140	25261400	SKiiP 26AC12T4V1
25232540	SKiiP 03NAC12T4V1	25241223	SKiiP 26GB12F4V1
25230210	SKiiP 05ANB16V1	25241215	SKiiP 26GB12T4V1
20338440	SKiiP 10NAC12T4IT45	25232570	SKiiP 26GH12T4V11
25231610	SKiiP 11AC12T4V1	20228700	SKiiP 30NAC12T4IT42
25231580	SKiiP 11NAB12T4V1	20229700	SKiiP 30NAC12T4IT42
25261580	SKiiP 11NAB12T4V1	20228500	SKiiP 31NAC12T4T42
25231590	SKiiP 12AC12T4V1	20229500	SKiiP 31NAC12T4T42
25232430	SKiiP 12ACC12T4V10	20228600	SKiiP 32NAC12T4T42
25231440	SKiiP 12NAB12T4V1	20229600	SKiiP 32NAC12T4T42
25261440	SKiiP 12NAB12T4V1	25231760	SKiiP 34ACS12T4V1
25231630	SKiiP 13AC12T4V1	25231500	SKiiP 34NAB12T4V1
20338385	SKiiP 20NAC12T4IT42	25232870	SKiiP 34NAB12T4V10
20339385	SKiiP 20NAC12T4IT42	25231740	SKiiP 35ACC12F4V1
20338390	SKiiP 22NAC12T4IT42	25231750	SKiiP 35ACS12T4V1
20339390	SKiiP 22NAC12T4IT42	25231470	SKiiP 35NAB12T4V1
25230740	SKiiP 22NAS12F4V1	25261470	SKiiP 35NAB12T4V1
20338460	SKiiP 23AC12T4T10	25232850	SKiiP 35TMLI12F4V2
20338470	SKiiP 23AC12T4T48	25231480	SKiiP 37AC12T4V1
25232520	SKiiP 23AC12T4V1	25231570	SKiiP 37NAB12T4V1
25262520	SKiiP 23AC12T4V1	25261570	SKiiP 37NAB12T4V1
25231510	SKiiP 23ACC12T4V10	25231670	SKiiP 37NAB12T4V10
25231410	SKiiP 23NAB12T4V1	25232960	SKiiP 37NAS12F4V1
25261410	SKiiP 23NAB12T4V1	25231600	SKiiP 38AC12T4V1
25231540	SKiiP 23NAB12T4V10	25231090	SKiiP 38AC12T4V2
25231460	SKiiP 24AC12T4V1	25221490	SKiiP 38NAB12T4V1
25261460	SKiiP 24AC12T4V1	25231490	SKiiP 38NAB12T4V1
25231520	SKiiP 24ACC12T4V10	25261490	SKiiP 38NAB12T4V1

Order Number:	Product Description:	Order Number:	Product Description:
25231730	SKiiP 39AC12F4V19	22892300	SKM150GAL12T4
25231450	SKiiP 39AC12T4V1	22892400	SKM150GAR12T4
25261450	SKiiP 39AC12T4V1	22892040	SKM150GB12T4
25231640	SKiiP 39AC12T4V10	22892050	SKM150GB12T4G
25261640	SKiiP 39AC12T4V10	21918850	SKM150GB12T4GH13
25232630	SKiiP 39AC12T4V16	22892530	SKM150GB12T4GW
25231000	SKiiP 39AC12T4V21	22892440	SKM150GM12T4
25232770	SKiiP 39GA12T4V1	22892450	SKM150GM12T4D2
25230510	SKiiP 39MLI12T4V1	22892460	SKM150GM12T4G
20228289	SKiiP 81AC12T4IST1	21918520	SKM152GA12T4
20228288	SKiiP 82AC12T4IST1	22892320	SKM200GAL12T4
20225630	SKiiP 82AC12T4IT1	22892060	SKM200GB12T4
20225620	SKiiP 82ANB15T40	22892069	SKM200GB12T4SiC
20228283	SKiiP 83 AC12T4IST1	22892220	SKM200GB12T4SiC2
20228282	SKiiP 83AC12T4IT1	22892470	SKM200GM12T4
20225610	SKiiP 83ANB15T40	21920260	SKM25GD12T4DH8
25232860	SKiiP12NAB12T4V10	22892120	SKM300GA12T4
25231710	SKiiP25AC12F4V19	22892330	SKM300GAL12T4
25238110	SKiiP25AC12T4V25	22892070	SKM300GB12T4
25251400	SKiiP26AC12T4V3	22892212	SKM300GBD12T4
25232100	SKiiP27AM12T4V1	22892480	SKM300GM12T4
25232930	SKiiP28BBC12F4V1	21916270	SKM300TGL12T4
25232830	SKiiP29TMLI12F4V1	22892100	SKM400GA12T4
25231720	SKiiP38AC12F4V19	22892310	SKM400GAL12T4
25232920	SKiiP39BBC12F4V1	22892410	SKM400GAR12T4
25232780	SKiiP39TMLI12T4V2	22892080	SKM400GB12T4
23916500	SKiM304GD12T4D	22892490	SKM400GM12T4
23916140	SKiM455GD12T4D1	22892096	SKM450GB12T4
23916170	SKiM455GD12T4DM1	22892290	SKM50GAL12T4
23930170	SKiM459GD12F4SC4	22892000	SKM50GB12T4
22892600	SKM100GAL12T4	22892500	SKM50GB12T4W
22892020	SKM100GB12T4	22892110	SKM600GA12T4
22892030	SKM100GB12T4G	22892010	SKM75GB12T4
22892520	SKM100GB12T4W	22892510	SKM75GB12T4W

List of affected products – sorted by Order Number:

Order Number:	Product Description:	Order Number:	Product Description:
07916590	SKD146/16L140T4	20339390	SKiiP 22NAC12T4IT42
07916600	SKD 116/12-L105	21916270	SKM300TGL12T4
07916610	SKD 116/16-L105	21916830	SKD50GAL12T4D
07916620	SKD 146/12-L105	21918520	SKM152GA12T4
07916630	SKD 146/16-L105	21918850	SKM150GB12T4GH13
07916640	SKD 116/12-L140	21920260	SKM25GD12T4DH8
07916650	SKD 116/16-L140	21920290	SEMiX155GD12T4
07916660	SKD 146/12-L140 T4	21920490	SEMiX105GD12T4
07916670	SKD 146/16-L140 T4	22892000	SKM50GB12T4
07916680	SKDH 116/08-L105	22892010	SKM75GB12T4
07916690	SKDH 116/12-L105	22892020	SKM100GB12T4
07916700	SKDH 116/16-L105	22892030	SKM100GB12T4G
07916710	SKDH 146/12-L105	22892040	SKM150GB12T4
07916720	SKDH 146/16-L105	22892050	SKM150GB12T4G
07916730	SKDH 116/12-L140	22892060	SKM200GB12T4
07916740	SKDH 116/16-L140	22892069	SKM200GB12T4SiC
07916750	SKDH 146/12-L140	22892070	SKM300GB12T4
07916760	SKDH 146/16-L140	22892080	SKM400GB12T4
07919320	SKD 146/16-L140T4T	22892096	SKM450GB12T4
20225610	SKiiP 83ANB15T40	22892100	SKM400GA12T4
20225620	SKiiP 82ANB15T40	22892110	SKM600GA12T4
20225630	SKiiP 82AC12T4IT1	22892120	SKM300GA12T4
20228282	SKiiP 83AC12T4IT1	22892212	SKM300GBD12T4
20228283	SKiiP 83 AC12T4IST1	22892220	SKM200GB12T4SiC2
20228288	SKiiP 82AC12T4IST1	22892290	SKM50GAL12T4
20228289	SKiiP 81AC12T4IST1	22892300	SKM150GAL12T4
20228500	SKiiP 31NAC12T4T42	22892310	SKM400GAL12T4
20228600	SKiiP 32NAC12T4T42	22892320	SKM200GAL12T4
20228700	SKiiP 30NAC12T4IT42	22892330	SKM300GAL12T4
20229500	SKiiP 31NAC12T4T42	22892400	SKM150GAR12T4
20229600	SKiiP 32NAC12T4T42	22892410	SKM400GAR12T4
20229700	SKiiP 30NAC12T4IT42	22892440	SKM150GM12T4
20338385	SKiiP 20NAC12T4IT42	22892450	SKM150GM12T4D2
20338390	SKiiP 22NAC12T4IT42	22892460	SKM150GM12T4G
20338440	SKiiP 10NAC12T4IT45	22892470	SKM200GM12T4
20338450	SKiiP 25AC12T4T10	22892480	SKM300GM12T4
20338460	SKiiP 23AC12T4T10	22892490	SKM400GM12T4
20338470	SKiiP 23AC12T4T48	22892500	SKM50GB12T4W
20339385	SKiiP 20NAC12T4IT42	22892510	SKM75GB12T4W

Order Number:	Product Description:	Order Number:	Product Description:
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22892530	SKM150GB12T4GW	24919631	SK25GD12T4ETp
22892600	SKM100GAL12T4	24919720	SK 120 GB 12F4 T
23916140	SKiM455GD12T4D1	24919730	SK 95 GAB 06 UF
23916170	SKiM455GD12T4DM1	24919781	SK25DGD12T4Tp
23916500	SKiM304GD12T4D	24919800	SK80TMLI12F4TpF0
23930170	SKiM459GD12F4SC4	24919810	SK50GLLE12F4TpF0
24914520	SK 100 GH 12T4 T	24919891	SK35DGD12T4Tp
24914780	SK 100 GD 12T4 T	24919930	SK80TMLI12F4TF0H
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24914800	SK 35 DGD 12T4 T	24920021	SK150TMLI12F4Tp
24914810	SK 25 DGD 12T4 T	24920030	SK81TMLI12F4TF0
24914820	SK 50 DGD 12T4 T	24920041	SK35MLI12T4p
24914830	SK 10 GD 12T4 ET	24920050	SK 15 DGD 12T4 ETK
24914840	SK 15 GD 12T4 ET	24920111	SK80TMLI12F4Tp
24914850	SK 25 GD 12T4 ET	24920140	SK 25 GAR 12F4 TSC
24914860	SK 35 GD 12T4 ET	24920161	SK40DGRT12F4SCp
24914870	SK 10 DGD 12T4 ET	24920170	SK80GD12F4T
24914880	SK 15 DGD 12T4 ET	24920181	SK10GD12T4ETp
24914890	SK 25 GB 12T4	24920230	SK 150 DGL 12T4
24914900	SK 35 GB 12T4	24920240	SK 100 GH 12T4TYK
24914910	SK 50 GB 12T4 T	24920330	SK40GLEF12F4TF1
24914920	SK 75 GB 12T4 T	24920340	SK160TMLI12F4TF1
24914930	SK 100 GB 12T4 T	24920361	SK100TMLI12F4TD1p
24914940	SK 50 GD 12T4 T	24920370	SK161TMLI12F4TF1
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24915290	SK 75 GAL 12T4	24920481	SK35GAMA12T4SCp
24915300	SK 75 GAR 12T4	24920560	SK100FLI12F4TF1
24915310	SK 35 GD 12T4	24920560	SK100FLI12F4TF1
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24915340	SK 150 BGA 12T4	25221490	SKiiP 38NAB12T4V1
24915850	SK 35 GAL 12T4	25230210	SKiiP 05ANB16V1
24915860	SK 35 GAR 12T4	25230510	SKiiP 39MLI12T4V1
24916340	SK 75 GAL 12T4	25230740	SKiiP 22NAS12F4V1
24917000	SK 10 GHR 12T4 II	25231000	SKiiP 39AC12T4V21
24917100	SK 25 GH 12T4	25231090	SKiiP 38AC12T4V2
24918360	SK 35 GLF 12T4 T	25231400	SKiiP 26AC12T4V1
24918530	SK 35 BGB 12T4	25231410	SKiiP 23NAB12T4V1
24919181	SK50GD12T4Tp	25231420	SKiiP 24NAB12T4V1

Order Number:	Product Description:	Order Number:	Product Description:
25231440	SKiiP 12NAB12T4V1	25232670	SKiiP 26 AC12T4V2
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25231460	SKiiP 24AC12T4V1	25232780	SKiiP39TMLI12T4V2
25231470	SKiiP 35NAB12T4V1	25232830	SKiiP29TMLI12F4V1
25231480	SKiiP 37AC12T4V1	25232850	SKiiP 35TMLI12F4V2
25231490	SKiiP 38NAB12T4V1	25232860	SKiiP12NAB12T4V10
25231500	SKiiP 34NAB12T4V1	25232870	SKiiP 34NAB12T4V10
25231510	SKiiP 23ACC12T4V10	25232920	SKiiP39BBC12F4V1
25231520	SKiiP 24ACC12T4V10	25232930	SKiiP28BBC12F4V1
25231540	SKiiP 23NAB12T4V10	25232960	SKiiP 37NAS12F4V1
25231550	SKiiP 25AC12T4V1	25238100	SKiiP 24NAB12T4V2
25231560	SKiiP 24NAB12T4V10	25238110	SKiiP25AC12T4V25
25231570	SKiiP 37NAB12T4V1	25241213	SKiiP 24GB12T4V1
25231580	SKiiP 11NAB12T4V1	25241215	SKiiP 26GB12T4V1
25231590	SKiiP 12AC12T4V1	25241223	SKiiP 26GB12F4V1
25231600	SKiiP 38AC12T4V1	25251400	SKiiP26AC12T4V3
25231610	SKiiP 11AC12T4V1	25261400	SKiiP 26AC12T4V1
25231620	SKiiP 26AC12T4V1	25261410	SKiiP 23NAB12T4V1
25231630	SKiiP 13AC12T4V1	25261420	SKiiP 24NAB12T4V1
25231640	SKiiP 39AC12T4V10	25261440	SKiiP 12NAB12T4V1
25231670	SKiiP 37NAB12T4V10	25261450	SKiiP 39AC12T4V1
25231700	SKiiP 25BBS12T4V1	25261460	SKiiP 24AC12T4V1
25231710	SKiiP25AC12F4V19	25261470	SKiiP 35NAB12T4V1
25231720	SKiiP38AC12F4V19	25261490	SKiiP 38NAB12T4V1
25231730	SKiiP 39AC12F4V19	25261570	SKiiP 37NAB12T4V1
25231740	SKiiP 35ACC12F4V1	25261580	SKiiP 11NAB12T4V1
25231750	SKiiP 35ACS12T4V1	25261640	SKiiP 39AC12T4V10
25231760	SKiiP 34ACS12T4V1	25262520	SKiiP 23AC12T4V1
25232100	SKiiP27AM12T4V1	27890112	SEMiX202GB12T4s
25232430	SKiiP 12ACC12T4V10	27890122	SEMiX302GB12T4s
25232520	SKiiP 23AC12T4V1	27890145	SEMiX453GAL12T4s
25232540	SKiiP 03NAC12T4V1	27890146	SEMiX453GB12T4s
25232570	SKiiP 26GH12T4V11	27890160	SEMiX604GB12T4s
25232630	SKiiP 39AC12T4V16	27890162	SEMiX604GB12T4v6

Customer Approval Form for PCN No. PCN 16-058 Rev. 00

Please check the appropriate box below:

- We agree with this proposed change and its schedule.
- We have objections:

Sender:

Company

Name:

Address:

Signature:

Date:

Customer
No.:

Please return to your local sales contact:

Name:

Phone:

Address:

Fax:

E-mail: