WeEn

WeEn Semiconductors

WeEn Gen1 SiC SBD(Schottky Barrier Diodes) Discontinuance Communication Package

Final Product Change Notification

Issue Date:2023-01-20

Effective Date:2023-01-23

Dear *Customer*,

Here's your quality information concerning products our customers and partners purchased from WeEn.

G1 SiC SBD discontinuance announcement and illustration

- The Gen1 SiC SBD has been launched from 2015 which fulfilled our SiC product line in early times, as by now WeEn has already released a full SiC product lineup, which have the better performance with optimized design. So WeEn decides to terminate the production of the Gen1 SiC parts.
- In the DOD part list has 42 types in total. Most of the Gen1 DOD parts have a corresponding G2 or G6 (Low Vf)replacement part.

Part types affected list and replacements (650V)

S/D Diode	Current	Package	Gen1 Part	WeEn Gen2 5D (6inch)	WeEn Gen6 6D (6inch)
Dual	2x8A	TO247-3L	WNSC16650CW	WNSC5D16650CW	WNSC6D16650CW
Dual	2x10A	TO247-3L	NXPLQSC20650W	WNSC5D20650CW	WNSC6D20650CW
Dual	2x15A	TO247-3L	NXPLQSC30650W	WNSC5D30650CW	WNSC6D30650CW
Single	10A	TO247-2L	WNSC10650W	WNSC5D10650W	x
Single	12A	TO247-2L	WNSC12650W	x	x
Single	20A	TO247-2L	WNSC20650W-A	x	x
Single	4A	TO220F-2L	NXPSC04650X	WNSC5D04650X	x
Single	6A	TO220F-2L	NXPSC06650X	WNSC5D06650X	WNSC6D06650X
Single	8A	TO220F-2L	NXPSC08650X	WNSC5D08650X	WNSC6D08650X
Single	10A	TO220F-2L	NXPSC10650X	WNSC5D10650X	WNSC6D10650X
Single	4A	TO220-2L	NXPSC04650	WNSC5D04650	WNSC6D04650
Single	6A	TO220-2L	NXPSC06650	WNSC5D06650	WNSC6D06650
Single	8A	TO220-2L	NXPSC08650	WNSC5D08650	WNSC6D08650
Single	12A	TO220-2L	NXPSC12650	WNSC5D12650	x
Single	16A	TO220-2L	NXPSC16650	x	WNSC6D16650
Single	20A	TO220-2L	NXPSC20650	WNSC5D20650	WNSC6D20650
Single	10A	TO220-2L	NXPLQSC10650	WNSC5D10650	x
Single	4A	DPAK	NXPSC04650D	WNSC5D04650D	WNSC6D04650D
Single	6A	DPAK	NXPSC06650D	WNSC5D06650D	WNSC6D06650D
Single	8A	DPAK	NXPSC08650D	WNSC5D08650D	WNSC6D08650D
Single	10A	DPAK	NXPSC10650D	WNSC5D10650D	WNSC6D10650D
Single	4A	DFN8x8	WNSC04650T	WNSC5D04650T	x
Single	4A	DFN8x8	WNSC04650L	WNSC5D04650T	x
Single	6A	DFN8x8	WNSC06650T	WNSC5D06650T	WNSC6D06650T
Single	8A	DFN8x8	WNSC08650T	WNSC5D08650T	WNSC6D08650T
Single	10A	DFN8x8	WNSC10650T	WNSC5D10650T	WNSC6D10650T
Single	12A	DFN8x8	WNSC12650T	WNSC5D12650T	x
Single	4A	D2PAK	NXPSC04650B	x	x
Single	6A	D2PAK	NXPSC06650B	x	x
Single	8A	D2PAK	NXPSC08650B	x	x
Single	10A	D2PAK	NXPSC10650B	WNSC5D10650B	WNSC6D10650B
Single	12A	D2PAK	NXPSC12650B	x	x
Single	16A	D2PAK	NXPSC16650B	x	WNSC6D16650B

Part types affected list and replacements (1200V)

S/D Diode	Current	Package	WeEn Gen1	WeEn Gen2
Double	2*5A	TO247-3L	WNSC101200CW	WNSC2D101200CW
Double	2*10A	TO247-3L	WNSC201200CW	WNSC2D201200CW
Double	2*20A	TO247-3L	WNSC401200CW	WNSC2D401200CW
Single	10A	TO247-2L	WNSC101200W	WNSC2D101200W
Single	20A	TO247-2L	WNSC201200W	WNSC2D201200W /WNSC2D201200W-B
Single	2A	TO220-2L	WNSC021200	WNSC2D021200
Single	5A	TO220-2L	WNSC051200	WNSC2D051200
Single	10A	TO220-2L	WNSC101200	WNSC2D101200
Single	20A	TO220-2L	WNSC20800	X

Typical key spec comparison 650V G1 VS G2, G6

650V **4A** Parts key spec comparison

Items	Test condition	Part G1			Part G2(5D)			Part G6(6D)		
		NXPSC04650			WNSC5D04650			WNSC6D04650		
		MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX
VF(V)	IF = 4 A; Tj = 25 °C		1.50	1.70		1.45	1.70		1.26	1.40
	IF = 4 A; Tj = 150 °C		1.80	2.10		1.80	2.20		1.35	1.55
IR(uA)	VR = 650 V; Tj = 25 °C			25		0.2	20		0.4	20
	VR = 650 V; Tj = 150 °C			100						
	VR = 650 V; Tj = 175 °C					10	100		6	80
VR(V)	IR=1mA，Tj=25 °C	650			650			650		
EAS(mJ)	G1:IR = 3.5 A; L = 5 mH; Tj(init) = 25 °C G2:IR = 2.8 A; L = 5 mH; Tj(init) = 25 °C G6:IR = 3.5 A; L = 5 mH; Tj(init) = 25 °C	30			20			30		
Qr(nC)	IF = 4 A; VR = 400 V; dIF/dt = 500 A/μs; Tj = 25 °C		7			6			9	
IFSM(A)	tp = 10 ms; Tj(init) = 25 °C; sine-wave pulse	24			28			36		
	tp = 10 μs; Tj(init) = 25 °C; square-wave pulse	235			240			350		

650V **6A** Parts key spec comparison

Items	Test condition	Part G1			Part G2(5D)			Part G6(6D)		
		NXPSC06650			WNSC5D06650			WNSC6D06650		
		MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX
VF(V)	IF = 6 A; Tj = 25 °C		1.50	1.70		1.45	1.70		1.26	1.40
	IF = 6 A; Tj = 150 °C		1.80	2.10		1.80	2.20		1.35	1.55
IR(uA)	VR = 650 V; Tj = 25 °C			40		0.3	30		0.6	30
	VR = 650 V; Tj = 150 °C			160						
	VR = 650 V; Tj = 175 °C					15	150		9	120
VR(V)	IR=1mA，Tj=25 °C	650			650			650		
EAS(mJ)	G1:IR = 4.25 A; L = 5 mH; Tj(init) = 25 °C G2:IR = 3.5 A; L = 5 mH; Tj(init) = 25 °C G6:IR = 4 A; L = 5 mH; Tj(init) = 25 °C	45			30			40		
Qr(nC)	IF = 6 A; VR = 400 V; dIF/dt = 500 A/μs; Tj = 25 °C;		9			9			13.5	
IFSM(A)	tp = 10 ms; Tj(init) = 25 °C; sine-wave pulse	36			40			54		
	tp = 10 μs; Tj(init) = 25 °C; square-wave pulse	310			310			580		

Typical key spec comparison 650V G1 VS G2, G6

650V **8A** Parts key spec comparison

Items	Test condition	Part G1			Part G2(5D)			Part G6(6D)		
		NXPSC08650			WNSC5D08650			WNSC6D08650		
		MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX
VF(V)	IF = 8 A; Tj = 25 °C		1.50	1.70		1.45	1.70		1.26	1.40
	IF = 8 A; Tj = 150 °C		1.80	2.10		1.80	2.20		1.35	1.55
IR(uA)	VR = 650 V; Tj = 25 °C			50		0.4	40		0.8	40
	VR = 650 V; Tj = 150 °C			200						
	VR = 650 V; Tj = 175 °C					20	200		12	160
VR(V)	IR=1mA, Tj=25 °C	650			650			650		
EAS(mJ)	G1:IR = 4.9 A; L = 5 mH; Tj(init) = 25 °C G2:IR = 4.2 A; L = 5 mH; Tj(init) = 25 °C G6:IR = 4.5 A; L = 5 mH; Tj(init) = 25 °C	60			45			50		
Qr(nC)	IF = 8 A; VR = 400 V; dIF/dt = 500 A/µs; Tj = 25 °C;		13			12			18	
IFSM(A)	tp = 10 ms; Tj(init) = 25 °C; sine-wave pulse	48			48			72		
	tp = 10 µs; Tj(init) = 25 °C; square-wave pulse	385			400			640		

650V **10A** Parts key spec comparison

Items	Test condition	Part G1			Part G2(5D)			Part G6(6D)		
		NXPSC10650			WNSC5D10650			WNSC6D10650		
		MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX
VF(V)	IF = 10 A; Tj = 25 °C		1.50	1.70		1.45	1.70		1.29	1.45
	IF = 10 A; Tj = 150 °C		1.80	2.10		1.80	2.20		1.45	1.65
IR(uA)	VR = 650 V; Tj = 25 °C			60		0.5	50		1	50
	VR = 650 V; Tj = 150 °C			240						
	VR = 650 V; Tj = 175 °C					25	250		15	200
VR(V)	IR=1mA, Tj=25 °C	650			650			650		
EAS(mJ)	G1:IR = 5.5 A; L = 5 mH; Tj(init) = 25 °C G2:IR = 5.0 A; L = 5 mH; Tj(init) = 25 °C G6:IR = 5.0 A; L = 5 mH; Tj(init) = 25 °C	75			60			60		
Qr(nC)	IF = 10 A; VR = 400 V; dIF/dt = 500 A/µs; Tj = 25 °C;		16			14.5			24	
IFSM(A)	tp = 10 ms; Tj(init) = 25 °C; sine-wave pulse	50			60			85		
	tp = 10 µs; Tj(init) = 25 °C; square-wave pulse	450			540			800		

Typical key spec comparison 1200V G1 VS G2

1200V **2A** Parts key spec comparison

Items	Test condition	Part G1			Part G2		
		WNSC021200			WNSC2D021200		
		MIN	TYP	MAX	MIN	TYP	MAX
VF(V)	IF = 2 A; Tj = 25 °C		1.40	1.60		1.42	1.60
	IF = 2 A; Tj = 150 °C		1.85	2.30		1.90	2.30
IR(uA)	VR = 1200 V; Tj = 25 °C		2	20		0.5	10
	VR = 1200 V; Tj = 175 °C		80			25	
VR(V)	IR=1mA · Tj=25 °C	1200			1200		
EAS(mJ)	G2:IR = 2.0 A; L = 10 mH; Tj(init) = 25 °C				18		
Qr(nC)	IF = 2 A; VR = 400 V; dIF/dt = 500 A/μs;Tj = 25 °C;		10			4	
IFSM(A)	tp = 10 ms; Tj(init) = 25 °C; sine-wave pulse	26			26		
	tp = 10 μs; Tj(init) = 25 °C; square-wave pulse	250			260		

1200V **10A** Parts key spec comparison

Items	Test condition	Part G1			Part G2		
		WNSC101200			WNSC2D101200		
		MIN	TYP	MAX	MIN	TYP	MAX
VF(V)	IF = 10 A; Tj = 25 °C		1.40	1.60		1.42	1.60
	IF = 10 A; Tj = 150 °C		1.85	2.30		1.90	2.30
IR(uA)	VR = 1200 V; Tj = 25 °C		10	110		1	50
	VR = 1200 V; Tj = 175 °C		450			25	500
VR(V)	IR=1mA · Tj=25 °C	1200			1200		
EAS(mJ)	G2:IR = 4.2 A; L = 10 mH; Tj(init) = 25 °C				88		
Qr(nC)	IF = 10 A; VR = 400 V; dIF/dt = 500 A/μs; Tj = 25 °C;		24			22	
IFSM(A)	tp = 10 ms; Tj(init) = 25 °C; sine-wave pulse	110			80		
	tp = 10 μs; Tj(init) = 25 °C; square-wave pulse	720			700		