



8755 W. Higgins Road Suite 500  
Chicago, Illinois USA 60631

March 27, 2018

**RE: PCN Production Transfer for Acquired ON Semiconductor Automotive TVS Diodes SMA (DO-214AC) and SMC (DO-214AB)**

To our valued customers,

On August 29, 2016, Littelfuse completed the acquisition of select ON Semiconductor product lines. The acquired product lines included TVS Diodes, Thyristors, and IGBT's for ignition applications as well as all relevant intellectual property.

It's our pleasure to announce that Littelfuse has successfully qualified the SMA (DO-214AC) and SMC (DO-214AB) automotive grade TVS Diode products (with part number starting with SZ or SC prefix), Qualification reports and part number lists are attached as appendices.

To ensure a smooth transition to serve our customers better, we ask that you contact your local Littelfuse sales teams with any specific questions or requests within 180 days or before September 26, 2018 at the latest.

Littelfuse will start to produce SMA (DO-214AC) and SMC (DO-214AB) automotive grade TVS Diode products (with part number starting with SZ or SC prefix) in our Wuxi, China manufacturing site starting October 1, 2018. During the production transition period we will ship from both the current ON Semiconductor Seremban site and the Littelfuse Wuxi China site. Littelfuse will provide customer specific cutover date codes based on each individual customer's approval process and the Littelfuse production conversion timeline.

For the customers who have already engaged with Littelfuse to receive validation samples and manage internal testing, Littelfuse will keep providing our support and service for customer qualifications until the final approvals is obtained.

**Qualification Plan and Part Number List**

Enclosed separately are the part numbers which are qualified in our Wuxi, China site, along with the qualification result.

**Project Milestones**

Date	Milestone
2/27/2017	SAP Go live: ordering/shipment of ON Semiconductor part numbers through Littelfuse – Finished
5/30/2017	Clean Rooms and Facility Hook Up completed by Littelfuse – Finished
10/31/2017	FAB & ASSY Equipment and Process Qualification completed by Littelfuse – Finished
3/26/2018	Internal Product Qualification Completed, Start Sampling and Initial Production from Littelfuse facilities SMA (DO-214AC) and SMC (DO-214AB) TVS products
10/01/2018	Initial Production from Littelfuse Wuxi site of SMA (DO-214AC) and SMC (DO-214AB) automotive grade TVS products and start the deliveries
12/31/2018	Last Order Date of ON Semiconductor part numbers from ON Semiconductor facilities for customers
6/30/2019	Automotive Customer Qualification Completed by Littelfuse
7/31/2019	Last Shipment Date of ON Semiconductor part numbers from ON Semiconductor facilities to customers
8/29/2019	Automotive TSA completed and Full Mass Production from Littelfuse Wuxi China



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### **Product Discontinuity**

Littelfuse has obsoleted all commercial grade TVS Diodes (those PNs without the **SZ/SC** prefix) starting from December 31, 2017, and will obsolete SMA-FL (SZNS6A), and replace it with the TPSMA6L series starting December 31, 2018.

### **Production Support and Last Time Buy from ON Semiconductor Seremban site**

ON Semiconductor will continue to manufacture and ship the automotive grade TVS Diodes (with part number starting with SZ or SC prefix) up to August 29, 2019 (or 3 years from acquisition date) to support those customers who require additional time to approve the Littelfuse made TVS Diodes. We ask that you communicate your approval requirements and timelines to your local Littelfuse sales representative as soon as possible if you have not done so already, and place your Last Time Buy orders before December 31, 2018 to ensure supply continuity.

All new SMA (DO-214AC) and SMC (DO-214AB) automotive grade TVS Diode sample orders and requests will be fulfilled from our Wuxi manufacturing site starting today (March 27, 2018)

### **Manufacturing Changes**

Although we are working with the ON Semiconductor team to duplicate their processes to the greatest extent possible, there are still some changes we would like to draw your attention to below.

	Current	Change to
Raw Silicon	ON Semiconductor, 6 inches	Littelfuse , 5 inches
Wafer Fab	ON Semiconductor	Littelfuse (Wuxi, China)
Backend	ON Semiconductor (DO-214AA,SMB)	Littelfuse (Wuxi, China)
	ON Semiconductor (DO-214AB,SMC)	Littelfuse (Wuxi, China)
	ON Semiconductor (DO-214AC,SMA)	Littelfuse (Wuxi, China)
	ON Semiconductor (SOD-123)	Littelfuse (Wuxi, China)
	ON Semiconductor (SMA-FL)	Obsolete SZNS6A and replace it with Littelfuse TPSMA6L series



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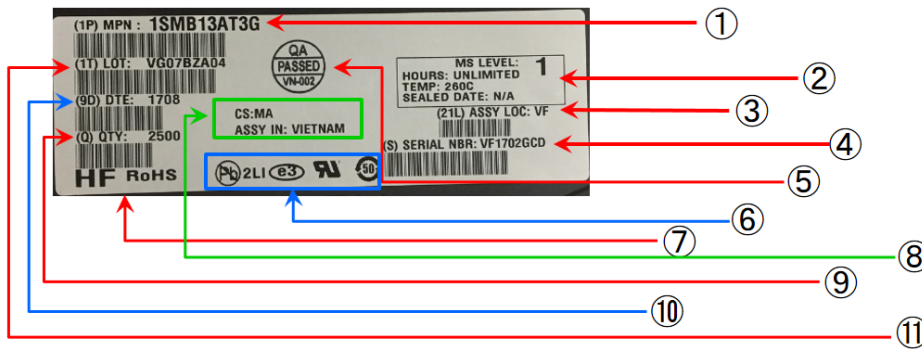
Meanwhile, Littelfuse will enhance the body marking and label specification for better traceability and service.

**Device Marking Change:** following production transfer into our Wuxi, China site.

Package	SMA	SMB	SMC	SMF (SOD123 - FL)
Existing (ON)				
Modified (LF)	 XXXX = Device Code Y = Year M = Month A = Assembly Location WW = Lot Code			 XX = Device Code Y = Year M = Month A = Assembly Location WW = Lot Code
Modification Items	1. Intergrat SMA, SMB and SMC using same marking diagram. 2. Use five digits trace code for better traceability. 3. Remove Pb-free dot. 4. Change polarity band quantity from three to one.			1. Change marking from one line to two lines. 2. Use five digits trace code for better traceability. 3. Remove Pb-free dot. 4. Change polarity band quantity from three to one.

**Note:** Polarity band is only for uni-directional components.

**Current label format:**

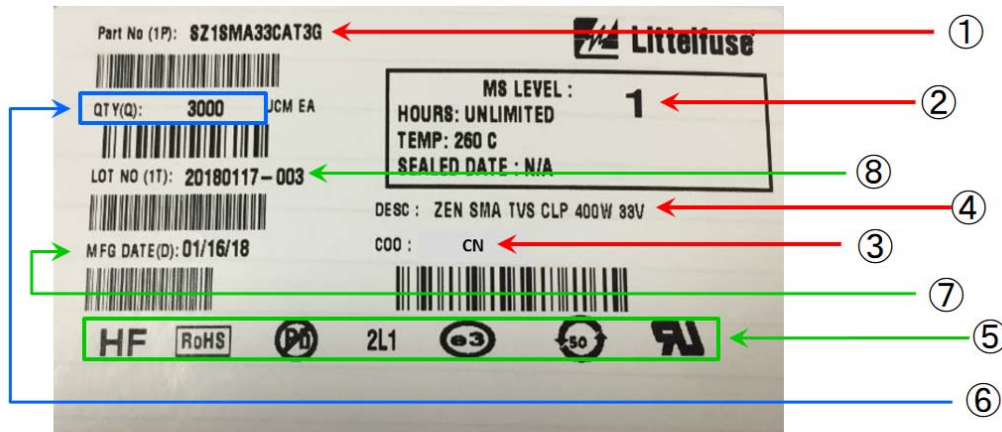


- Legend:
- 1. Part number
- 2. MSL Level
- 3. Assembly site
- 4. ON Serial Number
- 5. QA passed mark
- 6. Pb and UL symbol
- 7. RoHS Compliance and HF symbol
- 8. Assembly location
- 9. Quantity
- 10. Manufacturing date
- 11. Lot number



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**New label format:** following production transfer into our Wuxi, China site.



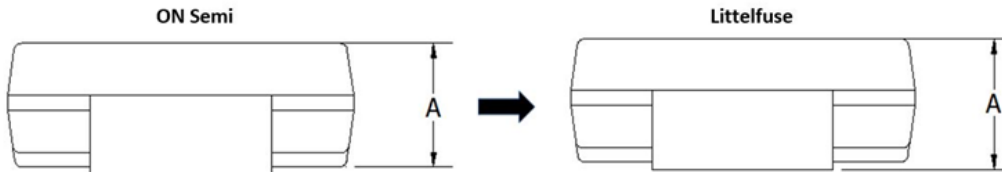
- Legend:
- 1. Part number
- 2. MSL Level
- 3. Assembly site
- 4. Component Description
- 5. Environmental symbol
- 6. Quantity
- 7. Manufacturing date
- 8. Lot number



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With an intensive qualification, Littelfuse would further clarify the SMC (DO214-AB) dimensions as below:

Dimension A is changed from body height to total height to keep with JEDEC standard.



DO214AB outline

--- Dimensions A, A1 and b are changed, other dimension specifications are no difference.

DIM	ON Semi(old)			Littelfuse(new)		
	MILLIMETERS			MILLIMETERS		
	MIN	NOM	MAX	MIN	NOM	MAX
A	1.90	2.13	2.41	2.00	2.22	2.41
A1	0.05	0.10	0.15	0.05	0.10	0.20
b	2.92	3.00	3.07	2.92	3.00	3.18
c	0.15	0.23	0.30	0.15	0.23	0.30
D	5.59	5.84	6.10	5.59	5.84	6.10
E	6.60	6.86	7.11	6.60	6.86	7.11
H <sub>E</sub>	7.75	7.94	8.13	7.75	7.94	8.13
L	0.76	1.02	1.27	0.76	1.02	1.27
L1	0.51 REF			0.51 REF		

Both SMA (DO-214AC) and SMC (DO-214AB) qualification reports and datasheets are included with this PCN letter reflecting the improvements above. The new datasheets will be on the Littelfuse website once all the customer approvals are obtained.

This PCN package is for your information and acknowledgement. If you require any specific data or product samples to certify this change, please contact Littelfuse as soon as possible.

If you have any further questions or concerns, please contact your Littelfuse local sales representative.

We value your business and look forward to assisting you whenever possible.

Best Regards,

Charlie Cai  
Product Manager Automotive and Hi-Rel TVS