



Final Product/Process Change Notification

Document #: FPCN23343X

Issue Date: 30 Jul 2020

Title of Change:	Capacity expansion of Assembly and Test Operations General Purpose Transistor and Bias Resistor Transistor (BRT) packaged in SC-88 to ON Semiconductor Seremban, Malaysia.	
Proposed First Ship date:	22 Nov 2020 or earlier if approved by customer	
Contact Information:	Contact your local ON Semiconductor Sales Office or Jason.Choy@onsemi.com	
PCN Samples Contact:	Contact your local ON Semiconductor Sales Office or PCN.samples@onsemi.com Sample requests are to be submitted no later than 30 days from the date of first notification, Initial PCN or Final PCN, for this change. Samples delivery timing will be subject to request date, sample quantity and special customer packing/label requirements.	
Additional Reliability Data:	Contact your local ON Semiconductor Sales Office or MohtAzizi.Azman@onsemi.com	
Type of Notification:	This is a Final Product/Process Change Notification (FPCN) sent to customers. FPCNs are issued 90 days prior to implementation of the change. ON Semiconductor will consider this change accepted, unless an inquiry is made in writing within 30 days of delivery of this notice. To do so, contact PCN.Support@onsemi.com	
Marking of Parts/ Traceability of Change:	Customer may receive the parts from ON Semiconductor Seremban, Malaysia from month on September 2020 onwards once FPCN expire. Parts from ON Semiconductor Seremban can be identified through product marking which follow ON Semiconductor marking format.	
Change Category:	Assembly Change, Test Change	
Change Sub-Category(s):	Manufacturing Site Addition	
Sites Affected:		
ON Semiconductor Sites	External Foundry/Subcon Sites	
ON Semiconductor Seremban, Malaysia	None	
Description and Purpose:		
This Final Notification announces the qualification of ON Semiconductor Seremban, Malaysia as the additional manufacturing site on top of Leshan Phoenix Semiconductor for SC88 package on Gen Purpose Transistor and BRT.		
There are no product material changes as a result of this change.		
	Before Change Description	After Change Description
Assembly Site	ON Semiconductor Leshan, China	ON Semiconductor Leshan, China ON Semiconductor Seremban, Malaysia
Test Site	ON Semiconductor Leshan, China	ON Semiconductor Leshan, China ON Semiconductor Seremban, Malaysia
Products listed in this notification will continue to be Pb-free, Halide free and RoHS compliant.		
Qualification tests are designed to show that the reliability of the transferred devices will continue to meet or exceed ON Semiconductor standards.		

**Reliability Data Summary:**QV DEVICE NAME : BC856DW1T1GRMS : V57602PACKAGE : SC-88 6L EUTECTIC

Test	Specification	Condition	Interval	Results
HTRB	JESD22-A108	Ta=125°C, 100 % max rated V	1008 hrs	0/154
H3TRB	JESD22-A101	Ta=85°C, 85% / 80% max rated V	1008 hrs	0/154
HTSL	JESD22-A103	Ta= 150°C	1008 hrs	0/154
TC	JESD22-A104	Ta= -55°C to 150°C	500 cyc	0/154
AC	JESD22-A102	121°C, 100% RH	96 hrs	0/154
IOL	MIL STD750 (M1037) AEC Q101	Ta=+25°C, deltaTj=100°C On/Off = 2 min	15000 cyc	0/154
PC	J-STD-020 JESD-A113	MSL 1 @ 260 °C		0/616
RSH	JESD22- B106	Ta = 265C, 10 sec		0/60

QV DEVICE NAME : MBT222ADW1T1GRMS : V57782PACKAGE : SC-88 6L EUTECTIC

Test	Specification	Condition	Interval	Results
HTRB	JESD22-A108	Ta=125°C, 100 % max rated V	1008 hrs	0/77
H3TRB	JESD22-A101	Ta=85°C, 85% / 80% max rated V	1008 hrs	0/77
HTSL	JESD22-A103	Ta= 150°C	1008 hrs	0/77
TC	JESD22-A104	Ta= -55°C to 150°C	500 cyc	0/77
AC	JESD22-A102	121°C, 100% RH	96 hrs	0/77
IOL	MIL STD750 (M1037) AEC Q101	Ta=+25°C, deltaTj=100°C On/Off = 2 min	15000 cyc	0/77
PC	J-STD-020 JESD-A113	MSL 1 @ 260 °C		0/308
RSH	JESD22- B106	Ta = 265C, 10 sec		0/30

QV DEVICE NAME : MUN5135DW1T1GRMS : L57789PACKAGE : SC-88 6L EUTECTIC

Test	Specification	Condition	Interval	Results
HTRB	JESD22-A108	Ta=125°C, 100 % max rated V	1008 hrs	0/154
HTSL	JESD22-A103	Ta= 150°C	1008 hrs	0/154
HAST	JESD22-A110	110°C, 85% RH, 18.8psig, bias	264 hrs	0/154
TC	JESD22-A104	Ta= -55°C to 150°C	500 cyc	0/154
uHAST	JESD22-A118	110°C, 85% RH, 18.8psig, unbias	264 hrs	0/154
IOL	MIL STD750 (M1037) AEC Q101	Ta=+25°C, deltaTj=100°C On/Off = 2 min	15000 cyc	0/154
PC	J-STD-020 JESD-A113	MSL 1 @ 260 °C		0/616
RSH	JESD22- B106	Ta = 265C, 10 sec		0/60

QV DEVICE NAME : **MUN5135DW1T1G**RMS : **L57787**PACKAGE : **SC-88 6L EUTECTIC**

Test	Specification	Condition	Interval	Results
HTRB	JESD22-A108	Ta=125°C, 100 % max rated V	1008 hrs	0/154
HTSL	JESD22-A103	Ta= 150°C	1008 hrs	0/154
HAST	JESD22-A110	110°C, 85% RH, 18.8psig, bias	264 hrs	0/154
TC	JESD22-A104	Ta= -55°C to 150°C	500 cyc	0/154
uHAST	JESD22-A118	110°C, 85% RH, 18.8psig, unbias	264 hrs	0/154
IOL	MIL STD750 (M1037) AEC Q101	Ta=+25°C, deltaTj=100°C On/Off = 2 min	15000 cyc	0/154
PC	J-STD-020 JESD-A113	MSL 1 @ 260 °C		0/616
RSH	JESD22- B106	Ta = 265C, 10 sec		0/60

Electrical Characteristics Summary:

Electrical characteristics are not impacted.

List of Affected Parts:

Note: Only the standard (off the shelf) part numbers are listed in the parts list. Any custom parts affected by this PCN are shown in the customer specific PCN addendum in the PCN email notification, or on the [PCN Customized Portal](#).

Part Number	Qualification Vehicle
MUN5335DW1T1G	MUN5235DW1T1G
MUN5335DW1T2G	MUN5235DW1T1G
MUN5336DW1T1G	MUN5235DW1T1G
BC846BDW1T1G	MBT2222ADW1T1G
BC846BPDW1T1G	MBT2222ADW1T1G
BC847BDW1T1G	MBT2222ADW1T1G
BC847BDW1T3G	MBT2222ADW1T1G
BC847BPDW1T1G	MBT2222ADW1T1G
BC847BPDW1T2G	MBT2222ADW1T1G
MUN5111DW1T1G	MUN5135DW1T1G
MUN5113DW1T1G	MUN5135DW1T1G
MUN5114DW1T1G	MUN5135DW1T1G
MUN5115DW1T1G	MUN5135DW1T1G
MUN5116DW1T1G	MUN5135DW1T1G



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MUN5133DW1T1G	MUN5135DW1T1G
MUN5135DW1T1G	MUN5135DW1T1G
MUN5211DW1T1G	MUN5235DW1T1G
MUN5212DW1T1G	MUN5235DW1T1G
MUN5213DW1T1G	MUN5235DW1T1G
MUN5214DW1T1G	MUN5235DW1T1G
MUN5215DW1T1G	MUN5235DW1T1G
MUN5216DW1T1G	MUN5235DW1T1G
MUN5230DW1T1G	MUN5235DW1T1G
MUN5231DW1T1G	MUN5235DW1T1G
MUN5232DW1T1G	MUN5235DW1T1G
MUN5233DW1T1G	MUN5235DW1T1G
MUN5235DW1T1G	MUN5235DW1T1G
MUN5237DW1T1G	MUN5235DW1T1G
MUN5311DW1T1G	MUN5235DW1T1G
MUN5311DW1T2G	MUN5235DW1T1G
MUN5312DW1T1G	MUN5235DW1T1G
MUN5313DW1T1G	MUN5235DW1T1G
MUN5314DW1T1G	MUN5235DW1T1G
MUN5316DW1T1G	MUN5235DW1T1G
MUN5330DW1T1G	MUN5235DW1T1G
MUN5332DW1T1G	MUN5235DW1T1G
MUN5333DW1T1G	MUN5235DW1T1G
BC847BPDW1T3G	MBT2222ADW1T1G
BC847CDW1T1G	MBT2222ADW1T1G
BC848CDW1T1G	MBT2222ADW1T1G
BC848CPDW1T1G	MBT2222ADW1T1G
BC856BDW1T1G	BC856BDW1T1G
BC857BDW1T1G	BC856BDW1T1G
BC857CDW1T1G	BC856BDW1T1G
MBT2222ADW1T1G	MBT2222ADW1T1G
MBT3904DW1T1G	MBT2222ADW1T1G
MBT3904DW1T3G	MBT2222ADW1T1G
MBT3906DW1T1G	BC856BDW1T1G



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MBT3946DW1T1G	MBT2222ADW1T1G
MBT3946DW1T2G	MBT2222ADW1T1G
MBT6429DW1T1G	MBT2222ADW1T1G
NST45010MW6T1G	BC856BDW1T1G
NST45011MW6T1G	MBT2222ADW1T1G
UMZ1NT1G	MBT2222ADW1T1G

Japanese translation of the notification starts here.
通知の日本語訳はここから始まります。

Note: The Japanese version is for reference only. In case of any differences between the English and Japanese version, the English version shall control.

注：日本語版は参照用です。英語版と日本語版の違いがある場合は、英語版が優先されます。



最終製品 / プロセス変更通知

文書番号# : FPCN23343X

発行日 : 30 Jul 2020

変更件名:	SC-88 にパッケージされた汎用トランジスタおよびバイアス抵抗トランジスタ (BRT) の組立および検査オペレーションの能力をオン・セミコンダクター セレンバン、マレーシアに拡大	
初回出荷予定日:	22 Nov 2020 またはお客様からの承認が得られた場合はそれ以前.	
連絡先情報:	現地のオン・セミコンダクター営業所または Jason.Choy@onsemi.com にお問い合わせください。	
サンプル:	現地のオン・セミコンダクター営業所または PCN.Samples@onsemi.com にお問い合わせください。 サンプルは、この変更の初回通知、初回 PCN の日付から 30 日以内に要求してください。 サンプル納入時は、依頼日、数量、特別梱包材/ラベル条件によって異なります。	
追加の信頼性データ:	お客さまの地域のオン・セミコンダクター営業所または contact MohdAzizi.Azman@onsemi.com にお問い合わせください。	
通知種別:	これは、お客様宛の最終製品 / プロセス変更通知 (FPCN) です。FPCN は、変更実施の 90 日前に発行されます。 オン・セミコンダクターは、この通知の送付から 30 日以内に書面による問い合わせがない限り、この変更が承諾されたものとみなします。お問い合わせは、 PCN.Support@onsemi.com 宛てにお願いします。	
変更部品の識別:	お客様は FPCN の有効期限切れ後の 2020 年 9 月以降から、オン・セミコンダクター セレンバン、マレーシアからの製品を受け取るようになります。オン・セミコンダクター セレンバンからの製品は、オン・セミコンダクターのマーキングフォーマットに従う製品マーキングにより識別できます。	
変更カテゴリ:	組立の変更, 検査の変更	
変更サブカテゴリ:	製造拠点の追加	
影響を受ける拠点:		
オン・セミコンダクター拠点:	外部製造工場 / 下請業者拠点:	
ON Semiconductor Seremban, Malaysia	無し	
説明および目的:	<p>この最終通知は、汎用トランジスタおよび BRT の SC88 パッケージの製造拠点として、樂山フェニックス・セミコンダクターに加えて オン・セミコンダクター セレンバン、マレーシア を追加認定することをお知らせするものです。</p> <p>今回の変更に伴う製品材料の変更はありません。</p>	
	変更前の表記	変更後の表記
組立拠点	ON Semiconductor Leshan, China	ON Semiconductor Leshan, China ON Semiconductor Seremban, Malaysia
検査拠点	ON Semiconductor Leshan, China	ON Semiconductor Leshan, China ON Semiconductor Seremban, Malaysia
<p>本通知にリストされている製品は引き続き鉛フリー、ハロゲン化合物フリーであり、RoHS に適合しています。</p> <p>認定試験は、移管された製品の信頼性が引き続きオン・セミコンダクターの基準以上となることを証明するように設計されています。</p>		



信頼性データの要約:

デバイス名: BC856DW1T1GRMS : V57602パッケージ: SC-88 6L EUTECTIC

テスト	仕様	条件	間隔	結果
HTRB	JESD22-A108	Ta=125°C, 100 % max rated V	1008 hrs	0/154
H3TRB	JESD22-A101	Ta=85°C, 85% / 80% max rated V	1008 hrs	0/154
HTSL	JESD22-A103	Ta= 150°C	1008 hrs	0/154
TC	JESD22-A104	Ta= -55°C to 150°C	500 cyc	0/154
AC	JESD22-A102	121°C, 100% RH	96 hrs	0/154
IOL	MIL STD750 (M1037) AEC Q101	Ta=+25°C, deltaTj=100°C On/Off = 2 min	15000 cyc	0/154
PC	J-STD-020 JESD-A113	MSL 1 @ 260 °C		0/616
RSH	JESD22- B106	Ta = 265C, 10 sec		0/60

デバイス名: MBT2222ADW1T1GRMS : V57782パッケージ: SC-88 6L EUTECTIC

テスト	仕様	条件	間隔	結果
HTRB	JESD22-A108	Ta=125°C, 100 % max rated V	1008 hrs	0/77
H3TRB	JESD22-A101	Ta=85°C, 85% / 80% max rated V	1008 hrs	0/77
HTSL	JESD22-A103	Ta= 150°C	1008 hrs	0/77
TC	JESD22-A104	Ta= -55°C to 150°C	500 cyc	0/77
AC	JESD22-A102	121°C, 100% RH	96 hrs	0/77
IOL	MIL STD750 (M1037) AEC Q101	Ta=+25°C, deltaTj=100°C On/Off = 2 min	15000 cyc	0/77
PC	J-STD-020 JESD-A113	MSL 1 @ 260 °C		0/308
RSH	JESD22- B106	Ta = 265C, 10 sec		0/30

デバイス名: MUN5135DW1T1GRMS : L57789パッケージ: SC-88 6L EUTECTIC

テスト	仕様	条件	間隔	結果
HTRB	JESD22-A108	Ta=125°C, 100 % max rated V	1008 hrs	0/154
HTSL	JESD22-A103	Ta= 150°C	1008 hrs	0/154
HAST	JESD22-A110	110°C, 85% RH, 18.8psig, bias	264 hrs	0/154
TC	JESD22-A104	Ta= -55°C to 150°C	500 cyc	0/154
uHAST	JESD22-A118	110°C, 85% RH, 18.8psig, unbiased	264 hrs	0/154
IOL	MIL STD750 (M1037) AEC Q101	Ta=+25°C, deltaTj=100°C On/Off = 2 min	15000 cyc	0/154
PC	J-STD-020 JESD-A113	MSL 1 @ 260 °C		0/616
RSH	JESD22- B106	Ta = 265C, 10 sec		0/60

デバイス名: MUN5135DW1T1G

RMS: L57787

パッケージ: SC-88 6L EUTECTIC

テスト	仕様	条件	間隔	結果
HTRB	JESD22-A108	Ta=125°C, 100 % max rated V	1008 hrs	0/154
HTSL	JESD22-A103	Ta= 150°C	1008 hrs	0/154
HAST	JESD22-A110	110°C, 85% RH, 18.8psig, bias	264 hrs	0/154
TC	JESD22-A104	Ta= -55°C to 150°C	500 cyc	0/154
uHAST	JESD22-A118	110°C, 85% RH, 18.8psig, unbiased	264 hrs	0/154
IOL	MIL STD750 (M1037) AEC Q101	Ta=+25°C, deltaTj=100°C On/Off = 2 min	15000 cyc	0/154
PC	J-STD-020 JESD-A113	MSL 1 @ 260 °C		0/616
RSH	JESD22- B106	Ta = 265C, 10 sec		0/60

電気的特性の要約: 電気的特性への影響はありません。

影響を受ける部品の一覧:

注: 部品一覧には標準部品番号 (既製品) のみが記載されています。本 PCN の影響を受けるカスタム部品番号は、PCN メールで提供される顧客個別の付録、または PCN カスタマイズポータルに記載されています。

部品番号	認定試験用ピークル
MUN5335DW1T1G	MUN5235DW1T1G
MUN5335DW1T2G	MUN5235DW1T1G
MUN5336DW1T1G	MUN5235DW1T1G
BC846BDW1T1G	MBT2222ADW1T1G
BC846BPDW1T1G	MBT2222ADW1T1G
BC847BDW1T1G	MBT2222ADW1T1G
BC847BDW1T3G	MBT2222ADW1T1G
BC847BPDW1T1G	MBT2222ADW1T1G
BC847BPDW1T2G	MBT2222ADW1T1G
MUN5111DW1T1G	MUN5135DW1T1G
MUN5113DW1T1G	MUN5135DW1T1G
MUN5114DW1T1G	MUN5135DW1T1G
MUN5115DW1T1G	MUN5135DW1T1G
MUN5116DW1T1G	MUN5135DW1T1G
MUN5133DW1T1G	MUN5135DW1T1G
MUN5135DW1T1G	MUN5135DW1T1G
MUN5211DW1T1G	MUN5235DW1T1G
MUN5212DW1T1G	MUN5235DW1T1G



MUN5213DW1T1G	MUN5235DW1T1G
MUN5214DW1T1G	MUN5235DW1T1G
MUN5215DW1T1G	MUN5235DW1T1G
MUN5216DW1T1G	MUN5235DW1T1G
MUN5230DW1T1G	MUN5235DW1T1G
MUN5231DW1T1G	MUN5235DW1T1G
MUN5232DW1T1G	MUN5235DW1T1G
MUN5233DW1T1G	MUN5235DW1T1G
MUN5235DW1T1G	MUN5235DW1T1G
MUN5237DW1T1G	MUN5235DW1T1G
MUN5311DW1T1G	MUN5235DW1T1G
MUN5311DW1T2G	MUN5235DW1T1G
MUN5312DW1T1G	MUN5235DW1T1G
MUN5313DW1T1G	MUN5235DW1T1G
MUN5314DW1T1G	MUN5235DW1T1G
MUN5316DW1T1G	MUN5235DW1T1G
MUN5330DW1T1G	MUN5235DW1T1G
MUN5332DW1T1G	MUN5235DW1T1G
MUN5333DW1T1G	MUN5235DW1T1G
BC847BPDW1T3G	MBT2222ADW1T1G
BC847CDW1T1G	MBT2222ADW1T1G
BC848CDW1T1G	MBT2222ADW1T1G
BC848CPDW1T1G	MBT2222ADW1T1G
BC856BDW1T1G	BC856BDW1T1G
BC857BDW1T1G	BC856BDW1T1G
BC857CDW1T1G	BC856BDW1T1G
MBT2222ADW1T1G	MBT2222ADW1T1G
MBT3904DW1T1G	MBT2222ADW1T1G
MBT3904DW1T3G	MBT2222ADW1T1G
MBT3906DW1T1G	BC856BDW1T1G
MBT3946DW1T1G	MBT2222ADW1T1G
MBT3946DW1T2G	MBT2222ADW1T1G
MBT6429DW1T1G	MBT2222ADW1T1G
NST45010MW6T1G	BC856BDW1T1G
NST45011MW6T1G	MBT2222ADW1T1G
UMZ1NT1G	MBT2222ADW1T1G



Appendix A: Changed Products

D

Product	Customer Part Number	Qualification Vehicle	New Part Number	Replacement Supplier
MUN5335DW1T1G		MUN5235DW1T1G		
MUN5335DW1T2G		MUN5235DW1T1G		
MUN5230DW1T1G		MUN5235DW1T1G		
MUN5233DW1T1G		MUN5235DW1T1G		
MUN5235DW1T1G		MUN5235DW1T1G		
MUN5311DW1T1G		MUN5235DW1T1G		
MUN5313DW1T1G		MUN5235DW1T1G		
MUN5316DW1T1G		MUN5235DW1T1G		
MUN5333DW1T1G		MUN5235DW1T1G		
BC847BPDW1T3G		MBT2222ADW1T1G		
BC847CDW1T1G		MBT2222ADW1T1G		
BC848CDW1T1G		MBT2222ADW1T1G		
BC856BDW1T1G		BC856BDW1T1G		
BC857BDW1T1G		BC856BDW1T1G		
MBT2222ADW1T1G		MBT2222ADW1T1G		
MBT3904DW1T1G		MBT2222ADW1T1G		
MBT3904DW1T3G		MBT2222ADW1T1G		
MBT3906DW1T1G		BC856BDW1T1G		
MBT3946DW1T1G		MBT2222ADW1T1G		
MBT6429DW1T1G		MBT2222ADW1T1G		
NST45010MW6T1G		BC856BDW1T1G		
UMZ1NT1G		MBT2222ADW1T1G		
MUN5336DW1T1G		MUN5235DW1T1G		
BC846BDW1T1G		MBT2222ADW1T1G		
BC846BPDW1T1G		MBT2222ADW1T1G		
BC847BDW1T1G		MBT2222ADW1T1G		
BC847BDW1T3G		MBT2222ADW1T1G		
BC847BPDW1T1G		MBT2222ADW1T1G		
BC847BPDW1T2G		MBT2222ADW1T1G		
MUN5111DW1T1G		MUN5135DW1T1G		
MUN5113DW1T1G		MUN5135DW1T1G		
MUN5114DW1T1G		MUN5135DW1T1G		
MUN5115DW1T1G		MUN5135DW1T1G		
MUN5116DW1T1G		MUN5135DW1T1G		
MUN5133DW1T1G		MUN5135DW1T1G		
MUN5135DW1T1G		MUN5135DW1T1G		
MUN5211DW1T1G		MUN5235DW1T1G		
MUN5212DW1T1G		MUN5235DW1T1G		
MUN5213DW1T1G		MUN5235DW1T1G		
MUN5214DW1T1G		MUN5235DW1T1G		
MUN5215DW1T1G		MUN5235DW1T1G		
MUN5216DW1T1G		MUN5235DW1T1G		



Appendix A: Changed Products

D

Product	Customer Part Number	Qualification Vehicle	New Part Number	Replacement Supplier
MUN5232DW1T1G		MUN5235DW1T1G		
MUN5311DW1T2G		MUN5235DW1T1G		
MUN5312DW1T1G		MUN5235DW1T1G		
MUN5314DW1T1G		MUN5235DW1T1G		
MUN5330DW1T1G		MUN5235DW1T1G		
BC848CPDW1T1G		MBT2222ADW1T1G		
BC857CDW1T1G		BC856BDW1T1G		
MBT3946DW1T2G		MBT2222ADW1T1G		
NST45011MW6T1G		MBT2222ADW1T1G		