



<b>Title of Change:</b>	Update to FPCN22038X - MiniGates™ Fab, Assembly Material and Test Change (SC88A) and VHC/HC/SZ Datasheet update		
<b>Proposed first ship date:</b>	1 September 2018		
<b>Contact information:</b>	Contact your local ON Semiconductor Sales Office or <logic.fpcn22038x@onsemi.com>		
<b>Samples:</b>	Contact your local ON Semiconductor Sales Office or <PCN.Samples@onsemi.com>		
<b>Additional Reliability Data:</b>	Contact your local ON Semiconductor Sales Office or <joe.chapple@onsemi.com>		
<b>Type of notification:</b>	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>		
<b>Change Part Identification:</b>	Products with date code "N" or greater may be from materials identified in table "After 90 day expiration Description". Products with date code "1" or greater will have materials from "After January 1st, 2019" in table below.		
<b>Change Category:</b>	<input checked="" type="checkbox"/> Wafer Fab Change <input checked="" type="checkbox"/> Assembly Change <input type="checkbox"/> Test Change <input type="checkbox"/> Other _____		
<b>Change Sub-Category(s):</b>	<input checked="" type="checkbox"/> Manufacturing Site Addition <input checked="" type="checkbox"/> Material Change <input checked="" type="checkbox"/> Datasheet/Product Doc change <input checked="" type="checkbox"/> Manufacturing Site Transfer <input type="checkbox"/> Product specific change <input type="checkbox"/> Shipping/Packaging/Marking <input checked="" type="checkbox"/> Manufacturing Process Change <input type="checkbox"/> Other: _____		
<b>Sites Affected:</b>	ON Semiconductor Sites: ON Leshan, China	External Foundry/Subcon Sites: External Foundry Tower, External Foundry TPSCo	
<b>Description and Purpose:</b>			
FPCN22038X was issued on May 2018 to Qualify new die source for Minigates to increase capacity and material standardization.			
This Update is issued for clarification of current materials being shipped, mold compound used are Hitachi GE200F and Henkel instead of EME 600 and Henkel. The materials matrix below has been updated.			
<b>Materials</b>	<b>Before 90 day expiration</b>	<b>After 90 day expiration and before January 1st, 2019</b>	<b>After January 1st, 2019</b>
Die	External Foundry Israel	External Foundry Israel or External Foundry Japan	External Foundry Japan
Die Attach	Eutectic	Eutectic	Eutectic
Wire	Cu	Cu	Cu
Wire*	Au (NL17SZ32DFT2G, NL17VHC1GT50DF1G, NL17SZ126DFT2G)	Au and Cu	Cu
Mold Compound	Hitachi GE200F or Henkel	Hitachi GE200F or Henkel	Henkel
Assy/test Site	ON Leshan, China	ON Leshan, China	ON Leshan, China
Tape & Reel Volumes	All items 3000 per reel	All items 3000 per reel	All items 3000 per reel
*parts with Gold wire will be available only until inventory is depleted.			



This also includes datasheet adjustment of the max operating voltage, alignment to JEDEC specs and clarification of OVT parameters per below datasheet example.

Note that  $V_{CC}$  and  $V_{IN}$  show NLV prefix parts (automotive) in TSOP-5 and SC-88A that have  $V_{CC}$  and  $V_{IN}$  from -0.5 to +7.0 and all other devices have  $V_{CC}$  and  $V_{IN}$  limits from -0.5 to +6.5V.

Note that  $V_{ESD}$  now lists HBM, CDM and  $I_{Latchup}$  per JEDEC requirements

Note that OVT comments and SPECS are now consistent

Specifications listed as TBD are associated with new products/packages in development

**MC74VHC1G125, MC74VHC1GT125**

**MAXIMUM RATINGS**

Symbol	Characteristics	Value	Unit	
$V_{CC}$	DC Supply Voltage TSOP-5, SC-88A (NLV) SC-74A, SC-88A, UDFN6, SOT-553, SOT-953	-0.5 to +7.0 -0.5 to +6.5	V	
$V_{IN}$	DC Input Voltage TSOP-5, SC-88A (NLV) SC-74A, SC-88A, UDFN6, SOT-553, SOT-953	-0.5 to +7.0 -0.5 to +6.5	V	
$V_{OUT}$	DC Output Voltage TSOP-5, SC-88A (NLV) Active-Mode (High or Low State) Tri-State Mode (Note 1) Power-Down Mode ( $V_{CC} = 0$ V)	-0.5 to $V_{CC} + 0.5$ -0.5 to +7.0 -0.5 to +7.0	V	
	DC Output Voltage SC-74A, SC-88A, UDFN6, SOT-553, SOT-953 Active-Mode (High or Low State) Tri-State Mode (Note 1) Power-Down Mode ( $V_{CC} = 0$ V)	-0.5 to $V_{CC} + 0.5$ -0.5 to +6.5 -0.5 to +6.5	V	
$I_{IK}$	DC Input Diode Current $V_{IN} < GND$	-50	mA	
$I_{OK}$	DC Output Diode Current $V_{OUT} < GND$	-50	mA	
$I_{OUT}$	DC Output Source/Sink Current	±50	mA	
$I_{CC}$ or $I_{GND}$	DC Supply Current per Supply Pin or Ground Pin	±100	mA	
$T_{STG}$	Storage Temperature Range	-65 to +150	°C	
$T_L$	Lead Temperature, 1 mm from Case for 10 secs	260	°C	
$T_J$	Junction Temperature Under Bias	+150	°C	
$\theta_{JA}$	Thermal Resistance (Note 2)	SC-88A	333	°C/W
		SC-74A	TBD	
		TSOP-5	333	
		SOT-553	TBD	
		SOT-953	TBD	
		UDFN6	TBD	
$P_D$	Power Dissipation in Still Air	SC-88A	200	mW
		SC-74A	TBD	
		TSOP-5	200	
		SOT-553	TBD	
		SOT-953	TBD	
		UDFN6	TBD	
MSL	Moisture Sensitivity	Level 1	-	
$F_R$	Flammability Rating Oxygen Index: 28 to 34	UL 94 V-0 @ 0.125 in	-	
$V_{ESD}$	ESD Withstand Voltage (Note 3) Human Body Model Charged Device Model	2000	V	
		1000		
$I_{Latchup}$	Latchup Performance (Note 4)	± 100	mA	

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

1. Applicable to devices with outputs that may be tri-stated.
2. Measured with minimum pad spacing on an FR4 board, using 10mm-by-1inch, 2 ounce copper trace no air flow.
3. HBM tested to ANSI/ESDA/JEDEC JS-001-2017. CDM tested to EIA/JESD22-C101-F. JEDEC recommends that ESD qualification to EIA/JESD22-A115-A (Machine Model) be discontinued per JEDEC/JEP172A.
4. Tested to EIA/JESD78 Class II.

**MC74VHC1G125, MC74VHC1GT125**

**DC ELECTRICAL CHARACTERISTICS (MC74VHC1G125)**

Symbol	Parameter	Test Conditions	V <sub>CC</sub> (V)	T <sub>A</sub> = 25°C			T <sub>A</sub> ≤ 85°C		-55 ≤ T <sub>A</sub> ≤ 125°C		Unit
				Min	Typ	Max	Min	Max	Min	Max	
V <sub>IH</sub>	High-Level Input Voltage		2.0	1.5			1.5		1.5		V
			3.0	2.1			2.1		2.1		
			4.5	3.15			3.15		3.15		
			5.5	3.85			3.85		3.85		
V <sub>IL</sub>	Low-Level Input Voltage		2.0			0.5		0.5		0.5	V
			3.0			0.9		0.9		0.9	
			4.5			1.35		1.35		1.35	
			5.5			1.65		1.65		1.65	
V <sub>OH</sub>	High-Level Output Voltage	V <sub>IN</sub> = V <sub>IH</sub> or V <sub>IL</sub> I <sub>OH</sub> = -50 μA I <sub>OH</sub> = -50 μA I <sub>OH</sub> = -50 μA I <sub>OH</sub> = -4 mA I <sub>OH</sub> = -8 mA	2.0	1.9	2.0		1.9		1.9		V
			3.0	2.9	3.0		2.9		2.9		
			4.5	4.4	4.5		4.4		4.4		
			3.0	2.58			2.48		2.34		
			4.5	3.94			3.80		3.66		
V <sub>OL</sub>	Low-Level Output Voltage	V <sub>IN</sub> = V <sub>IH</sub> or V <sub>IL</sub> I <sub>OL</sub> = 50 μA I <sub>OL</sub> = 50 μA I <sub>OL</sub> = 50 μA I <sub>OL</sub> = 4 mA I <sub>OL</sub> = 8 mA	2.0		0.0	0.1		0.1		0.1	V
			3.0		0.0	0.1		0.1		0.1	
			4.5		0.0	0.1		0.1		0.1	
			3.0			0.36		0.44		0.52	
			4.5			0.36		0.44		0.52	
I <sub>IN</sub>	Input Leakage Current	V <sub>IN</sub> = 5.5 V or GND	1.65 to 5.5			±0.1		±1.0		±1.0	μA
I <sub>OZ</sub>	3-State Output Leakage Current	V <sub>OUT</sub> = 0 V to 5.5 V	5.5			±0.25		±2.5		±2.5	μA
I <sub>OFF</sub>	Power Off Leakage Current	V <sub>IN</sub> = 5.5 V or V <sub>OUT</sub> = 5.5 V	0			1.0		10		10	μA
I <sub>CC</sub>	Quiescent Supply Current	V <sub>IN</sub> = V <sub>CC</sub> or GND	5.5			1.0		20		40	μA

**MC74VHC1G125, MC74VHC1GT125**

**DC ELECTRICAL CHARACTERISTICS (MC74VHC1GT125)**

Symbol	Parameter	Test Conditions	V <sub>CC</sub> (V)	T <sub>A</sub> = 25°C			T <sub>A</sub> ≤ 85°C		-55 ≤ T <sub>A</sub> ≤ 125°C		Unit
				Min	Typ	Max	Min	Max	Min	Max	
V <sub>IH</sub>	High-Level Input Voltage		2.0	1.0			1.0		1.0		V
			3.0	1.4			1.4		1.4		
			4.5	2.0			2.0		2.0		
			5.5	2.0			2.0		2.0		
V <sub>IL</sub>	Low-Level Input Voltage		2.0			0.28		0.28		0.28	V
			3.0			0.45		0.45		0.45	
			4.5			0.8		0.8		0.8	
			5.5			0.8		0.8		0.8	
V <sub>OH</sub>	High-Level Output Voltage	V <sub>IN</sub> = V <sub>IH</sub> or V <sub>IL</sub> I <sub>OH</sub> = -50 μA I <sub>OH</sub> = -50 μA I <sub>OH</sub> = -50 μA I <sub>OH</sub> = -4 mA I <sub>OH</sub> = -8 mA	2.0	1.9	2.0		1.9		1.9		V
			3.0	2.9	3.0		2.9		2.9		
			4.5	4.4	4.5		4.4		4.4		
			3.0	2.58			2.48		2.34		
			4.5	3.94			3.80		3.66		
V <sub>OL</sub>	Low-Level Output Voltage	V <sub>IN</sub> = V <sub>IH</sub> or V <sub>IL</sub> I <sub>OL</sub> = 50 μA I <sub>OL</sub> = 50 μA I <sub>OL</sub> = 50 μA I <sub>OL</sub> = 4 mA I <sub>OL</sub> = 8 mA	2.0		0.0	0.1		0.1		0.1	V
			3.0		0.0	0.1		0.1		0.1	
			4.5		0.0	0.1		0.1		0.1	
			3.0			0.36		0.44		0.52	
			4.5			0.36		0.44		0.52	
I <sub>IN</sub>	Input Leakage Current	V <sub>IN</sub> = 5.5 V or GND	1.65 to 5.5			±0.1		±1.0		±1.0	μA
I <sub>OZ</sub>	3-State Output Leakage Current	V <sub>OUT</sub> = 0 V to 5.5 V	5.5			±0.25		±2.5		±2.5	μA
I <sub>OFF</sub>	Power Off Leakage Current	V <sub>IN</sub> = 5.5 V or V <sub>OUT</sub> = 5.5 V	0			1.0		10		10	μA
I <sub>CC</sub>	Quiescent Supply Current	V <sub>IN</sub> = V <sub>CC</sub> or GND	5.5			1.0		20		40	μA
I <sub>CCCT</sub>	Increase in Quiescent Supply Current per Input Pin	One Input: V <sub>IN</sub> = 3.4 V; Other Input at V <sub>CC</sub> or GND	5.5			1.35		1.5		1.65	mA

**Reliability Data Summary:**

QV DEVICE NAME MC74VHC1G14DFT2G

RMS L40690

PACKAGE SC88A (5ld)

Test	Specification	Condition	Interval	Results
HTOL	JESD22-A108	Ta=125°C, 100 % max rated Vcc	1008 hrs	0/288
HTSL	JESD22-A103	Ta= 150°C	1008 hrs	0/252
TC	JESD22-A104	Ta= -65°C to +150°C	500 cyc	0/297
HAST	JESD22-A110	130°C, 85% RH, 18.8psig, bias	96 hrs	0/273
uHAST	JESD22-A118	130°C, 85% RH, 18.8psig, unbiased	96 hrs	0/234
PC	J-STD-020 JESD-A113	MSL 1 @ 260 °C		0/804
RSH	JESD22- B106	Ta = 265C, 10 sec		0/30

**Electrical Characteristic Summary:**

Electrical characteristics Available upon request.

**List of Affected Parts:**

Part Number	Qualification Vehicle
M74VHC1G125DFT1G	MC74VHC1G14DFT2G
M74VHC1G125DFT2G	MC74VHC1G14DFT2G
M74VHC1G126DFT1G	MC74VHC1G14DFT2G
M74VHC1G126DFT2G	MC74VHC1G14DFT2G
M74VHC1G132DFT1G	MC74VHC1G14DFT2G
M74VHC1G132DFT2G	MC74VHC1G14DFT2G
M74VHC1G135DFT1G	MC74VHC1G14DFT2G
M74VHC1G135DFT2G	MC74VHC1G14DFT2G
M74VHC1GT00DFT1G	MC74VHC1G14DFT2G
M74VHC1GT00DFT2G	MC74VHC1G14DFT2G
M74VHC1GT02DFT1G	MC74VHC1G14DFT2G
M74VHC1GT02DFT2G	MC74VHC1G14DFT2G
M74VHC1GT04DFT1G	MC74VHC1G14DFT2G
M74VHC1GT04DFT2G	MC74VHC1G14DFT2G
M74VHC1GT04DFT3G	MC74VHC1G14DFT2G
M74VHC1GT08DFT1G	MC74VHC1G14DFT2G
M74VHC1GT08DFT2G	MC74VHC1G14DFT2G
M74VHC1GT125DF1G	MC74VHC1G14DFT2G
M74VHC1GT125DF2G	MC74VHC1G14DFT2G



M74VHC1GT126DF1G	MC74VHC1G14DFT2G
M74VHC1GT126DF2G	MC74VHC1G14DFT2G
M74VHC1GT14DFT1G	MC74VHC1G14DFT2G
M74VHC1GT14DFT2G	MC74VHC1G14DFT2G
M74VHC1GT32DFT1G	MC74VHC1G14DFT2G
M74VHC1GT32DFT2G	MC74VHC1G14DFT2G
M74VHC1GT50DFT1G	MC74VHC1G14DFT2G
M74VHC1GT50DFT2G	MC74VHC1G14DFT2G
M74VHC1GT86DFT1G	MC74VHC1G14DFT2G
M74VHC1GT86DFT2G	MC74VHC1G14DFT2G
M74VHC1GU04DFT1G	MC74VHC1G14DFT2G
M74VHC1GU04DFT2G	MC74VHC1G14DFT2G
MC74HC1G00DFT1G	MC74VHC1G14DFT2G
MC74HC1G00DFT2G	MC74VHC1G14DFT2G
MC74HC1G02DFT2G	MC74VHC1G14DFT2G
MC74HC1G04DFT1G	MC74VHC1G14DFT2G
MC74HC1G04DFT2G	MC74VHC1G14DFT2G
MC74HC1G08DFT1G	MC74VHC1G14DFT2G
MC74HC1G08DFT2G	MC74VHC1G14DFT2G
MC74HC1G14DFT1G	MC74VHC1G14DFT2G
MC74HC1G14DFT2G	MC74VHC1G14DFT2G
MC74HC1G32DFT1G	MC74VHC1G14DFT2G
MC74HC1G32DFT2G	MC74VHC1G14DFT2G
MC74HC1GU04DFT1G	MC74VHC1G14DFT2G
MC74HC1GU04DFT2G	MC74VHC1G14DFT2G
MC74VHC1G00DFT1G	MC74VHC1G14DFT2G
MC74VHC1G00DFT2G	MC74VHC1G14DFT2G
MC74VHC1G01DFT1G	MC74VHC1G14DFT2G
MC74VHC1G01DFT2G	MC74VHC1G14DFT2G
MC74VHC1G02DFT1G	MC74VHC1G14DFT2G
MC74VHC1G02DFT2G	MC74VHC1G14DFT2G
MC74VHC1G03DFT1G	MC74VHC1G14DFT2G
MC74VHC1G03DFT2G	MC74VHC1G14DFT2G
MC74VHC1G04DFT1G	MC74VHC1G14DFT2G
MC74VHC1G04DFT2G	MC74VHC1G14DFT2G
MC74VHC1G05DFT1G	MC74VHC1G14DFT2G
MC74VHC1G05DFT2G	MC74VHC1G14DFT2G
MC74VHC1G07DFT1G	MC74VHC1G14DFT2G



MC74VHC1G07DFT2G	MC74VHC1G14DFT2G
MC74VHC1G08DFT1G	MC74VHC1G14DFT2G
MC74VHC1G08DFT2G	MC74VHC1G14DFT2G
MC74VHC1G09DFT1G	MC74VHC1G14DFT2G
MC74VHC1G09DFT2G	MC74VHC1G14DFT2G
MC74VHC1G125DFT1G	MC74VHC1G14DFT2G
MC74VHC1G14DFT1G	MC74VHC1G14DFT2G
MC74VHC1G14DFT2G	MC74VHC1G14DFT2G
MC74VHC1G32DFT1G	MC74VHC1G14DFT2G
MC74VHC1G32DFT2G	MC74VHC1G14DFT2G
MC74VHC1G50DFT1G	MC74VHC1G14DFT2G
MC74VHC1G50DFT2G	MC74VHC1G14DFT2G
MC74VHC1G86DFT1G	MC74VHC1G14DFT2G
MC74VHC1G86DFT2G	MC74VHC1G14DFT2G
MC74VHC1GU04DF1G	MC74VHC1G14DFT2G
NL17SZ00DFT2G	MC74VHC1G14DFT2G
NL17SZ02DFT2G	MC74VHC1G14DFT2G
NL17SZ04DFT2G	MC74VHC1G14DFT2G
NL17SZ06DFT2G	MC74VHC1G14DFT2G
NL17SZ07DFT2G	MC74VHC1G14DFT2G
NL17SZ08DFT2G	MC74VHC1G14DFT2G
NL17SZ125DFT2G	MC74VHC1G14DFT2G
NL17SZ126DFT2G	MC74VHC1G14DFT2G
NL17SZ14DFT2G	MC74VHC1G14DFT2G
NL17SZ16DFT2G	MC74VHC1G14DFT2G
NL17SZ17DFT2G	MC74VHC1G14DFT2G
NL17SZ32DFT2G	MC74VHC1G14DFT2G
NL17SZ86DFT2G	MC74VHC1G14DFT2G
NL17SZU04DFT2G	MC74VHC1G14DFT2G
NL17VHC1GT50DF1G	MC74VHC1G14DFT2G
NL18SZ125DFT2G	MC74VHC1G14DFT2G

## NOTE:

Please be informed that there are Customer Specific parts impacted by this notice, thus MPN & CPN info will not be reflected in the parts list of this Generic document. Instead please click the link to the addendum copy provided in the email notification to see full list of affected products specific to your company.