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**FINAL PRODUCT/PROCESS CHANGE NOTIFICATION**  
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**09-AUG-2004**

**SUBJECT: ON Semiconductor Final Product/Process Change Notification #13564**

**TITLE: Qualification of D2PAK Packages at ON Semi Seremban**

**EFFECTIVE DATE: 09-Oct-2004**

**AFFECTED CHANGE CATEGORY: ON Semiconductor Assembly/Test Site**

**AFFECTED PRODUCT DIVISION: Analog Products**

**ADDITIONAL RELIABILITY DATA:** Available

Contact your local ON Semiconductor Sales Representative or Bob Marquis <FC88FC@onsemi.com>

**SAMPLES:** Contact your local ON Semiconductor Sales Representative or Jaroslav Supina <FFBX3N@onsemi.com>

**FOR ANY QUESTIONS CONCERNING THIS NOTIFICATION:**

Contact Sales Representative or Alan Garlington <RRP180@onsemi.com>

**NOTIFICATION TYPE:**

Final Product/Process Change Notification (FPCN)

Final change notification sent to customers. FPCNs are issued at least 60 days prior to implementation of the change.

ON Semiconductor will consider this change approved unless specific conditions of acceptance are provided in writing within 30 days of receipt of this notice. To do so, contact your local ON Semiconductor Sales Office.

**DESCRIPTION AND PURPOSE:**

Final Product Change Notice to inform customers of the qualification of the ON Semiconductor Seremban factory for assembly and test of D2PAK packages. Initial Product Change Notice number 13276 was issued on December 19, 2003 which provided advance notice for this change.

The Seremban factory already produces many other packaged products and is ISO9001:2000 and TS16949 certified.

In addition to the change of location, another modification is being made to the package. Lead finish plating will be performed prior to parts being trimmed from the lead frame. There will be a small area of exposed copper showing at the edge of the heat sink.

Customers may receive product for the D2PAK package styles from either the current Tesla, Czech Republic factory or the new Seremban, Malaysia factory in the future.



**Final Product/Process Change Notification #13564**

**QUALIFICATION PLAN:**

D2PAK - MC33167D2T - 3 assembly lots total  
 Preconditioning per JEDEC MSL1 at 260 C.  
 Auto Clave (AC) - 96 Hrs  
 HAST - 96 Hrs  
 Temp Cycle - 500 and 1000 Cycles  
 High Temperature Bake (HTB) - 1008 Hrs  
 High Temp Op Life (HTOL) - 504, 1008 Hrs at 125 C.

**RELIABILITY DATA SUMMARY:**

Device Tested: MC33167T  
 Number of Lots Tested: 3

Test	Conditions	Interval	Rejects	Sample
Preconditioning	MSL 1-260		0	252
PC-Autoclave	Ta=121C, P = 15PSIG RH = 100%	96 Hrs	0	252
PC-Temp Cycle	Ta= -65 to 150C	500 Cycle	0	252
High Temp Storage	Ta = 150C	504 Hrs	0	252
High Temp Op Life	Ta=125C with Bias Vin = 40 v.	504 Hrs	0	252
PC-HAST	Ta=130C, RH=85% Vin = 10 v.	96 Hrs	0	252
Solder Heat	Ta=260C, 10 Sec Dwell	1X	0	90
	Ta=310C, 10 Sec Dwell	1X	0	90
Solderability	Steam Age = 8Hr, Ta=260C	1X	0	30

**ELECTRICAL CHARACTERISTIC SUMMARY:**

Exact same Die source. No change to electrical characterization.

**CHANGED PART IDENTIFICATION:**

Assembly lot traceability codes can be used to determine the factory used for assembly.

**AFFECTED DEVICE LIST :**

**PART**

- LM2575D2T-005
- LM2575D2T-012
- LM2575D2T-015
- LM2575D2T-12R4
- LM2575D2T-15R4
- LM2575D2T-3.3
- LM2575D2T-3.3R4
- LM2575D2T-5R4



**Final Product/Process Change Notification #13564**

LM2575D2T-ADJ  
LM2575D2T-ADJR4  
LM2576D2T-005  
LM2576D2T-005G  
LM2576D2T-012  
LM2576D2T-015  
LM2576D2T-3.3  
LM2576D2T-ADJ  
LM2576D2T-ADJG  
LM2576D2T-ADJR4  
LM2576D2T-ADJR4G  
LM2576D2TR4-005  
LM2576D2TR4-012  
LM2576D2TR4-3.3  
LM2576D2TR4-3.3G  
LM2931ACD2TR4  
LM2931AD2T-5.0  
LM2931AD2T-5.0R4  
LM2931CD2T  
LM2931CD2TR4  
LM2931D2T-5.0  
LM2931D2T-5.0R4  
LM317BD2T  
LM317BD2TG  
LM317BD2TR4  
LM317BD2TR4G  
LM317D2T  
LM317D2TG  
LM317D2TR4  
LM317D2TR4G  
LM337BD2T  
LM337BD2TR4  
LM337D2T  
LM337D2TR4  
LM337D2TR4G  
MC33166D2T  
MC33166D2TR4  
MC33167D2T  
MC33566D2T-001  
MC33566D2T-1RK  
MC34166D2T  
MC34166D2TR4  
MC34166D2TR4G  
MC34167D2T  
MC34167D2TR4  
MC7805ABD2T  
MC7805ABD2TR4  
MC7805ACD2T  
MC7805ACD2TR4  
MC7805ACD2TR4G  
MC7805BD2T  
MC7805BD2TR4  
MC7805CD2T  
MC7805CD2TR4  
MC7805CD2TR4G  
MC7806BD2T



**Final Product/Process Change Notification #13564**

MC7806BD2TR4  
MC7806BD2TR4G  
MC7808ABD2T  
MC7808ABD2TR4  
MC7808BD2T  
MC7808BD2TG  
MC7808BD2TR4  
MC7808CD2T  
MC7808CD2TR4  
MC7808CD2TR4G  
MC7809CD2T  
MC7809CD2TR4  
MC7812ABD2T  
MC7812ABD2TR4  
MC7812ACD2T  
MC7812ACD2TR4  
MC7812BD2T  
MC7812BD2TR4  
MC7812BD2TR4G  
MC7812CD2T  
MC7812CD2TG  
MC7812CD2TR4  
MC7812CD2TR4G  
MC7815ABD2T  
MC7815ABD2TR4  
MC7815ACD2T  
MC7815ACD2TG  
MC7815BD2T  
MC7815BD2TR4  
MC7815BD2TR4G  
MC7815CD2T  
MC7815CD2TR4  
MC7818CD2T  
MC7818CD2TR4  
MC7824BD2T  
MC7824BD2TR4  
MC7824CD2T  
MC7824CD2TR4  
MC78T05CD2T  
MC78T05CD2TR4  
MC7905ACD2T  
MC7905ACD2TR4  
MC7905BD2T  
MC7905BD2TR4  
MC7905CD2T  
MC7905CD2TR4  
MC7906CD2T  
MC7908CD2T  
MC7908CD2TR4  
MC7908CD2TR4G  
MC7912ACD2T  
MC7912ACD2TR4  
MC7912BD2T  
MC7912BD2TR4  
MC7912CD2T  
MC7912CD2TR4



**Final Product/Process Change Notification #13564**

MC7915ACD2T  
MC7915BD2T  
MC7915CD2T  
MC7915CD2TR4  
MC7924CD2T  
NCP565D2T  
NCP565D2T12  
NCP565D2T12R4  
NCP565D2T12R4G  
NCP565D2TR4  
NCP565D2TR4G  
NCP630AD2T  
NCP630AD2TR4  
NCP630GD2T  
NCP630GD2TR4  
NCP630GD2TR4G  
NCP631GD2T  
NCP631GD2TR4  
NCP631GD2TR4G  
NCV2931D2T-5.0R4  
NCV317BD2T  
NCV317BD2TG  
NCV317BD2TR4  
NCV317BD2TR4G  
NCV4275DS  
NCV4275DSR4  
NCV4276DS18  
NCV4276DS18R4  
NCV4276DS25  
NCV4276DS25R4  
NCV4276DS33  
NCV4276DS33R4  
NCV4276DS50  
NCV4276DS50R4  
NCV4276DSADJ  
NCV4276DSADJR4  
NCV7805BD2T  
NCV7805BD2TR4  
NCV7812BD2T  
NCV7812BD2TR4  
PC33273D2T  
PC33273D2T-3.3