



PRODUCT/PROCESS CHANGE NOTIFICATION
Generic Copy

03-MAY-2001

SUBJECT: Product/Process Change Notification #11390

TITLE: D2PAK (Surface Mount TO-220) Leadframe Enhancement

EFFECTIVE DATE: 10-Aug-2001

AFFECTED CHANGE CATEGORY: ON Semiconductor Assembly Site

AFFECTED PRODUCT DIVISION: MOS Power and Bipolar Discretes Products Div

ADDITIONAL RELIABILITY DATA: Available
Contact your local ON Semiconductor Sales Office.
or Ken Crozier <RJT440@onsemi.com>

SAMPLES: Contact Below
Contact your local ON Semiconductor Sales Office.
or Jim Nappe <RWD710@onsemi.com>

FOR ANY QUESTIONS CONCERNING THIS NOTIFICATION:
Contact Sales Office or Mark Wasilewski <RYGF20@onsemi.com>

DISCLAIMER:

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:

The purpose of this notification is to inform customers about a leadframe enhancement change to the D2Pak package for Power Bipolar, Rectifier and Power Management (TMOS) devices. New D2Pak leadframe features include:

- Center posts design of leadframe (77% less stress to die during manufacturing processes)
- Dual Center Mold Locks (enhanced mechanical lock of mold compound to leadframe to improve moisture robustness)
- Internal waffle design on heatsink to improve die bond solder thickness control
- Wider internal post to enhance Rdson on TMOS devices (This feature will allow multiple wires to be wirebonded on post to reduce Rdson and may be used for new products.)
- Anchor holes in leadframe to enhance moisture resistance

QUALIFICATION PLAN: See Reliability Data



Product/Process Change Notification #11390

RELIABILITY DATA SUMMARY:

Full reliability qualification data has been completed on three (3) different device types:

MGB20N40CL - 400V Insulated Gate Bipolar Transistor

MBRB3040 - 40V Schottky Rectifier

MTB3N120E - 1200V TMOS Transistor

Each device completed testing with zero failures from three separate manufacturing lots as summarized below:

<u>Test Description</u>	<u>Duration</u>	<u>Lot 1</u>	<u>Lot 2</u>	<u>Lot 3</u>
		<u>(ss/rej)</u>		
Temperature Cycle with MSL1 Preconditioning per JESD22. (-65C to +150C, 15min dwell)	1000 cy.	80/0	80/0	80/0
Autoclave (121C, 100%RH, 14.7PSIG)		80/0	80/0	80/0
Intermittent Op Life with MSL1 Preconditioning per JESD22. (DeltaT=100C, Tmax=maxTj)	10K cy.	80/0	80/0	80/0
High Temperature, Humidity, Bias with MSL1 Preconditioning per JESD22. (85C, 85%RH, bias voltage)	1008 hr.	80/0	80/0	80/0
Destructive Physical Analysis on post TC & HTRB units		4/0	4/0	4/0
Solderability (260C, 10 sec)		10/0	10/0	10/0
Solder Heat		10/0	10/0	10/0
Die Shear		10/0	10/0	10/0

For complete reliability reports or additional supporting information, please contact your local sales support or reliability contact identified in this notification.

ELECTRICAL CHARACTERISTIC SUMMARY:

No changes to electrical characterization. Data available and may be obtained, please contact your local sales support or samples contact identified in this notification.

CHANGED PART IDENTIFICATION:

Changed product may have marking date code of 0132 (2001, work week 32) or later. Changed devices will also be able to be identified with top tab trim locations on top of tabs rather than corners and back heatsink will have two shorter elongated mold filled areas rather than one long mold filled area.

ADDITIONAL INFORMATION:

Samples Point of Contact for Power Transistors/Rectifiers:
Jim Nappe 602-244-4912.

Samples Point of Contact for TMOS/IGBT:
Kirby Dorwachter 602-244-6664.



Product/Process Change Notification #11390

AFFECTED DEVICE LIST:

PART

MBRB1045
MBRB1045T4
MBRB1545CT
MBRB1545CTT4
MBRB20100CT
MBRB20100CTT4
MBRB20200CT
MBRB20200CTT4
MBRB2060CT
MBRB2060CTT4
MBRB2515L
MBRB2515LT4
MBRB2535CTL
MBRB2535CTLT4
MBRB2545CT
MBRB2545CTT4
MBRB3030CT
MBRB3030CTL
MBRB3030CTLT4
MBRB3030CTT4
MBRB4030
MBRB4030T4
MGB15N35CLT4
MGB15N38CLT4
MGB15N40CLT4
MGB15N43CLT4
MGB19N35CLT4
MGB20N35CLT4
MGB20N36CL
MGB20N36CLT4
MGB20N40CL
MGB20N40CLT4
MGRB1018T4
MGRB2025CTT4
MJB18004D2T4
MJB42C
MJB42CT4
MJB44H11
MJB44H11T4
MJB45H11
MJB45H11T4
MTB10N40E
MTB10N40ET4
MTB10N60E7
MTB10N60E7T4
MTB1306
MTB1306P
MTB1306PT4
MTB1306T4
MTB15N06V
MTB15N06VT4
MTB16N25E
MTB16N25ET4

**Product/Process Change Notification #11390**

MTB1N100E
MTB20N20E
MTB20N20ET4
MTB23P06V
MTB23P06VT4
MTB24N06HDL
MTB24N06HDL1
MTB24N06HDLT4
MTB29N15E
MTB29N15ET4
MTB2N40E
MTB2N60ET4
MTB2P50E
MTB2P50ET4
MTB30N06VL
MTB30N06VLT4
MTB30P06V
MTB30P06VT4
MTB33N10E
MTB33N10ET4
MTB36N06V
MTB36N06VT4
MTB3N100E
MTB3N100ET4
MTB3N120E
MTB3N120ET4
MTB3N60E
MTB3N60ET4
MTB40N10E
MTB40N10ET4
MTB4N40ET4
MTB4N50E
MTB4N50ET4
MTB4N80E
MTB4N80ET4
MTB50N06V
MTB50N06VL
MTB50N06VLT4
MTB50N06VT4
MTB50P03HDL
MTB50P03HDLT4
MTB52N06V
MTB52N06VL
MTB52N06VLT4
MTB52N06VT4
MTB55N06Z
MTB55N06ZT4
MTB60N05HDL
MTB60N05HDLT4
MTB60N06HD
MTB60N06HDT4
MTB6N60E
MTB6N60ET4
MTB75N03HDL
MTB75N03HDLT4
MTB75N05HD

**Product/Process Change Notification #11390**

MTB75N05HDT4
MTB75N06HD
MTB75N06HDT4
MTB8N50E
MTB8N50ET4
MURB1620CT
MURB1620CTT4
MURB1660CT
MURB1660CTT4
MURHB840CT
MURHB840CTT4
MURHB860CT
MURHB860CTT4
NTB10N40
NTB10N40T4
NTB10N60
NTB10N60T4
NTB12N50
NTB12N50T4
NTB15N40
NTB15N40T4
NTB45N06
NTB45N06L
NTB45N06LT4
NTB45N06T4
NTB60N06
NTB60N06L
NTB60N06LT4
NTB60N06T4
NTB6N60
NTB6N60T4
NTB75N06
NTB75N06L
NTB75N06LT4
NTB75N06T4
NTB8N50
NTB8N50T4
SBRB1545CT
SBRB20100CT
SBRB20100CTT4
SBRB20200CT
SBRB20200CTT4
SBRB2060CT
SBRB2060CTT4
SBRB2515L
SBRB2515LT4
SBRB2535CTL
SBRB2535CTLT4
SBRB2545CT
SBRB2545CTT4
SBRB3030CT
SBRB3030CTL
SBRB3030CTLT4
SBRB3030CTT4
SBRB4030
SBRB4030T4

**Product/Process Change Notification #11390**

SGB15N40CLT4
SGB20N35CL
SGB20N35CLT4
SGB20N36CL
SGB20N36CLT4
SGB20N40CL
SGB20N40CLT4
SJB42C
SJB42CT4
STB10N40E
STB10N40ET4
STB1306
STB1306T4
STB15N06V
STB15N06VT4
STB16N25E
STB16N25ET4
STB1N100E
STB20N20E
STB20N20ET4
STB23P06V
STB23P06VT4
STB24N06HDL
STB24N06HDL1
STB24N06HDLT4
STB29N15E
STB29N15ET4
STB2N60E
STB2N60ET4
STB2P50E
STB2P50ET4
STB30N06EL
STB30N06ELT4
STB30N06VL
STB30N06VLT4
STB30P06V
STB30P06VT4
STB33N10E
STB33N10ET4
STB36N06V
STB36N06VT4
STB3N100E
STB3N100ET4
STB3N120E
STB3N120ET4
STB3N60E
STB3N60ET4
STB40N10E
STB40N10ET4
STB4N40E
STB4N40ET4
STB4N50E
STB4N50ET4
STB4N80E
STB4N80ET4
STB50N06E



Product/Process Change Notification #11390

STB50N06EL
STB50N06ELT4
STB50N06ET4
STB50N06V
STB50N06VL
STB50N06VLT4
STB50N06VT4
STB50P03HDL
STB50P03HDLT4
STB52N06V
STB52N06VL
STB52N06VLT4
STB52N06VT4
STB55N06Z
STB55N06ZT4
STB60N05HDL
STB60N05HDLT4
STB60N06HD
STB60N06HDT4
STB6N60E
STB6N60ET4
STB75N03HDL
STB75N03HDLT4
STB75N05HD
STB75N05HDT4
STB75N06HD
STB75N06HDT4
STB8N50E
STB8N50ET4
STB9N25E
STB9N25ET4
SUB70N03-09P
SURB1620CT
SURB1620CTT4
SURB1660CT
SURB1660CTT4
SURHB840CT
SURHB840CTT4
SURHB860CT
SURHB860CTT4
XAMPB100
XTB10N60
XTB10N60T4