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**FINAL PRODUCT/PROCESS CHANGE NOTIFICATION # 20253**Generic Copy

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**Issue Date:** 22-Oct-2013**TITLE:** Qualification of ON Semiconductor Vietnam (OSV) for the Assembly and Test of Ultrafast Rectifiers packaged in the TO220FullPak and Transition to a New Case Outline**PROPOSED FIRST SHIP DATE:** 22-Jan-2014**AFFECTED CHANGE CATEGORY(S):** ON Semiconductor Assembly & Test**FOR ANY QUESTIONS CONCERNING THIS NOTIFICATION:**Contact your local ON Semiconductor Sales Office or following contact Product Engineer:  
Raja Roziah Raja Rahmat <[Raja.Roziah.Rahmat@onsemi.com](mailto:Raja.Roziah.Rahmat@onsemi.com)>**SAMPLES:** Contact your local ON Semiconductor Sales Office**ADDITIONAL RELIABILITY DATA:** AvailableContact your local ON Semiconductor Sales Office or Reliability Engineer Chean Ching Sim  
<[cheanching.sim@onsemi.com](mailto:cheanching.sim@onsemi.com)>**NOTIFICATION TYPE:**

Final Product/Process Change Notification (FPCN)

Final change notification sent to customers. FPCNs are issued at least 90 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 <[quality@onsemi.com](mailto:quality@onsemi.com)>.**DESCRIPTION AND PURPOSE:**

ON Semiconductor is transitioning the assembly and test of ultrafast rectifiers packaged in the TO-220 Fullpack from SP Semi, Korea to ON Semiconductor Vietnam (OSV). This includes a change in the case outline to a more compact form factor. The case outline change is in response to customer requests for a package outline matching that of MOSFETs commonly paired with these devices. Case outlines 221E and 221D will transition to case outlines 221AG and 221AH respectively.

Upon the expiration of this FPCN, TO220 Full Pak Ultrafast Rectifier will be produced in ON Semiconductor Vietnam (OSV). These products have been qualified to commodity/commercial requirements. These products will be Pb-free, Halide free and RoHS compliant.



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**RELIABILITY DATA SUMMARY:**

**Reliability Test Results:**

**Device MURF1660CTG**

<b>Test:</b>	<b>Conditions:</b>	<b>Interval:</b>	<b>Results</b>
HTRB	Ta=150°C 80% Rated Voltage	1008 hrs	0/252
Autoclave	Ta=121°C RH=100% 15 psig	96 hrs	0/252
H3TRB	Ta=85°C RH=85%	1008 hrs	0/252
	bias=80% rated V or 100V Max		
IOL	Ta=25°C, Delta TJ = 100°C, Ton/off = 2 min.	15,000 cycles	0/252
TC	Ta= -65°C to 150°C	1000 cycles	0/252
HTSL	Ta = 150°C	1008 hrs	0/252
RSH	Ta=260°C, 10 sec dwell		0/90
Solderability	Ta=245°C, 10 sec dwell		0/45

**ELECTRICAL CHARACTERISTIC SUMMARY:**

There are no changes in electrical characteristics; product performance meets data sheet specifications. Characterization data is available upon request.

**CHANGED PART IDENTIFICATION:**

Product from ON Semiconductor Vietnam will be marked with site code VN prior to date code.

**List of affected General Parts:**

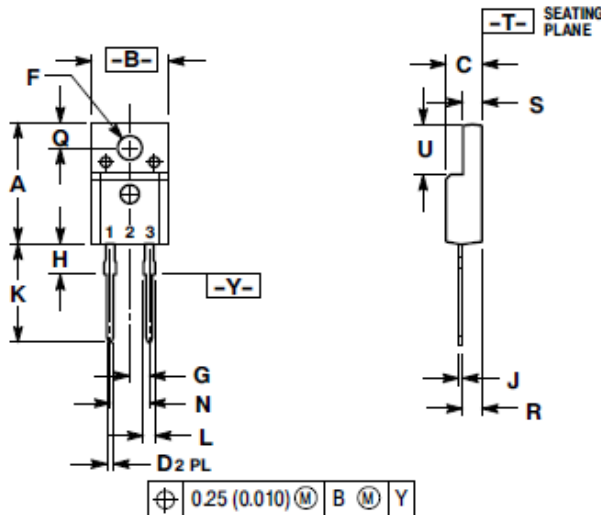
- MURF1560G
- MSRF1560G
- MSRF860G
- MURF1620CTG
- MURF1660CTG
- MURF860G



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Comparison between case outline

TO-220 FULLPAK, 2-LEAD  
CASE 221E-01

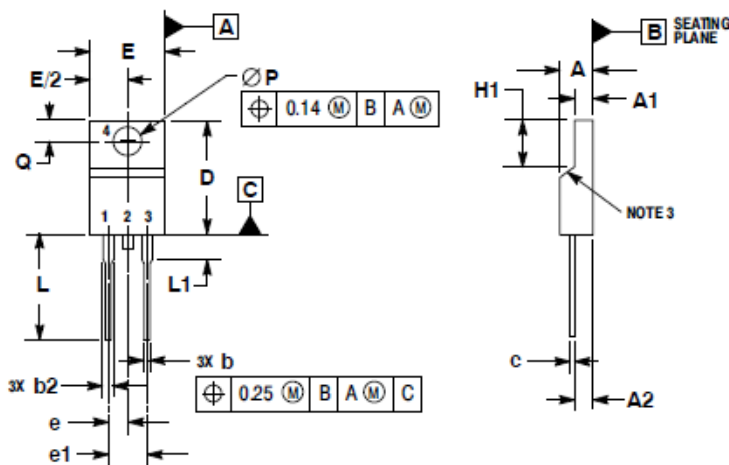


- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
  2. CONTROLLING DIMENSION: INCH.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.617	0.633	15.67	16.07
B	0.392	0.408	9.96	10.36
C	0.177	0.193	4.50	4.90
D	0.024	0.039	0.60	1.00
F	0.121	0.129	3.08	3.28
G	0.100 BSC		2.54 BSC	
H	0.117	0.133	2.98	3.38
J	0.018	0.025	0.45	0.64
K	0.499	0.562	12.68	14.27
L	0.045	0.060	1.14	1.52
N	0.200 BSC		5.08 BSC	
Q	0.122	0.138	3.10	3.50
R	0.101	0.117	2.56	2.96
S	0.092	0.108	2.34	2.74
U	0.255	0.271	6.48	6.88

- STYLE 1:  
PIN 1: CATHODE  
2: N/A  
3: ANODE

TO-220 FULLPACK, 2-LEAD  
CASE 221AG



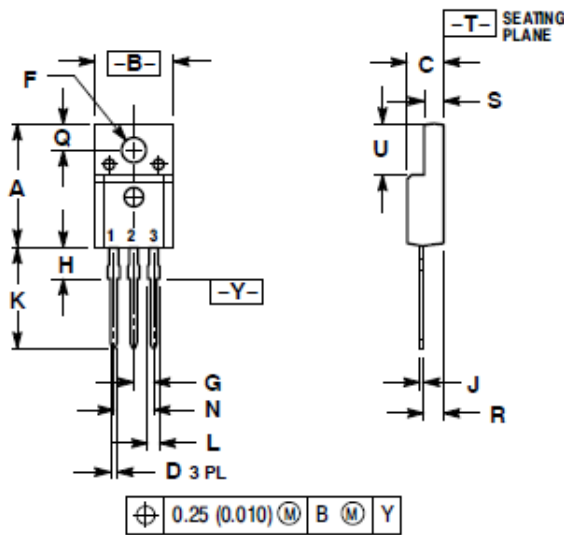
- NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
  2. CONTROLLING DIMENSION: MILLIMETERS.
  3. CONTOUR UNCONTROLLED IN THIS AREA.
  4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH AND GATE PROTRUSIONS. MOLD FLASH AND GATE PROTRUSIONS NOT TO EXCEED 0.13 PER SIDE. THESE DIMENSIONS ARE TO BE MEASURED AT OUTERMOST EXTREME OF THE PLASTIC BODY.
  5. DIMENSION b2 DOES NOT INCLUDE DAMBAR PROTRUSION. LEAD WIDTH INCLUDING PROTRUSION SHALL NOT EXCEED 2.00.

DIM	MILLIMETERS	
	MIN	MAX
A	4.30	4.70
A1	2.50	2.90
A2	2.50	2.90
b	0.54	0.84
b2	1.10	1.40
c	0.49	0.79
D	14.22	15.88
E	9.65	10.67
e	2.54 BSC	
e1	5.08 BSC	
H1	5.97	6.48
L	12.70	14.73
L1	---	2.80
P	3.00	3.40
Q	2.80	3.20



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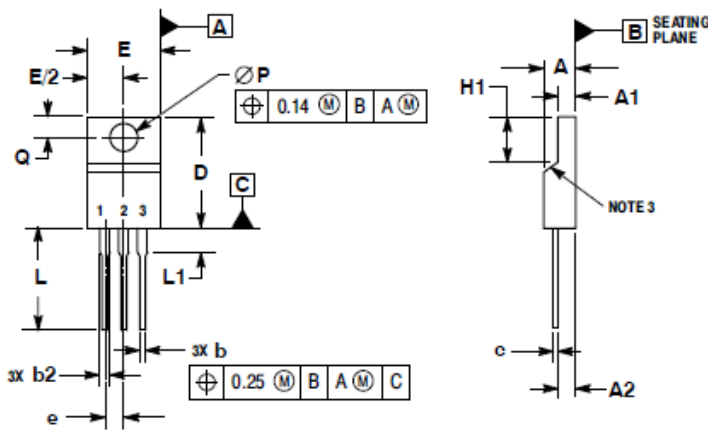
TO-220 FULLPAK  
CASE 221D-03



- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
  2. CONTROLLING DIMENSION: INCH
  3. 221D-01 THRU 221D-02 OBSOLETE, NEW STANDARD 221D-03.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.617	0.635	15.67	16.12
B	0.392	0.419	9.96	10.63
C	0.177	0.193	4.50	4.90
D	0.024	0.039	0.60	1.00
F	0.116	0.129	2.95	3.28
G	0.100 BSC		2.54 BSC	
H	0.118	0.135	3.00	3.43
J	0.018	0.025	0.45	0.63
K	0.503	0.541	12.78	13.73
L	0.048	0.058	1.23	1.47
N	0.200 BSC		5.08 BSC	
Q	0.122	0.138	3.10	3.50
R	0.089	0.117	2.51	2.96
S	0.092	0.113	2.34	2.87
U	0.239	0.271	6.06	6.88

TO-220 FULLPACK, 3-LEAD  
CASE 221AH



- NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
  2. CONTROLLING DIMENSION: MILLIMETERS.
  3. CONTOUR UNCONTROLLED IN THIS AREA.
  4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH AND GATE PROTRUSIONS. MOLD FLASH AND GATE PROTRUSIONS NOT TO EXCEED 0.13 PER SIDE. THESE DIMENSIONS ARE TO BE MEASURED AT OUTERMOST EXTREME OF THE PLASTIC BODY.
  5. DIMENSION b2 DOES NOT INCLUDE DAMBAR PROTRUSION. LEAD WIDTH INCLUDING PROTRUSION SHALL NOT EXCEED 2.00.

DIM	MILLIMETERS	
	MIN	MAX
A	4.30	4.70
A1	2.50	2.90
A2	2.50	2.90
b	0.54	0.84
b2	1.10	1.40
c	0.49	0.79
D	14.70	15.30
E	9.70	10.30
e	2.54 BSC	
H1	6.70	7.10
L	12.70	14.73
L1	---	2.10
P	3.00	3.40
Q	2.80	3.20