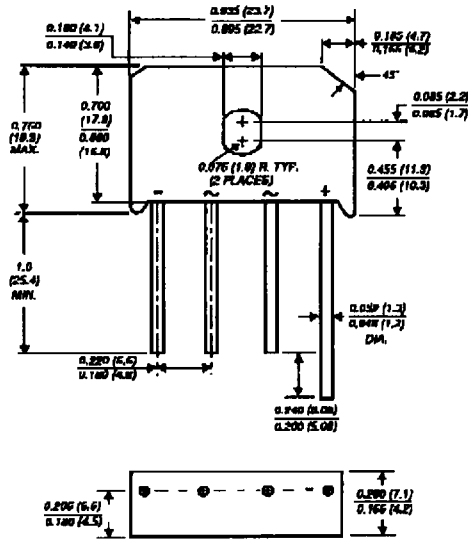


# KBU8A THRU KBU8M

## SINGLE-PHASE BRIDGE RECTIFIER

**Reverse Voltage - 50 to 1000 Volts      Forward Current - 8.0 Amperes**

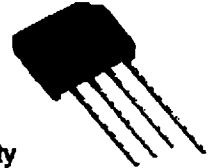
### Case Style KBU



Dimensions in inches and (millimeters)

### FEATURES

- ◆ Plastic material used carries Underwriters Laboratory Flammability Classification 94V-0
- ◆ This series is UL listed under Recognized Component Index, file number E54214
- ◆ High case dielectric strength of 1500 VRMS
- ◆ Ideal for printed circuit boards
- ◆ High forward surge current capability
- ◆ High temperature soldering guaranteed: 250°C/10 seconds, 0.375" (9.5mm) lead length, 5lbs. (2.3 kg) tension



### MECHANICAL DATA

- Case:** Molded plastic body
- Terminals:** Plated leads solderable per MIL-STD-750, Method 2026
- Mounting Position:** Any (NOTE 1)
- Mounting Torque:** 5 in.-lb. max.
- Weight:** 0.3 ounce, 8.0 grams

## MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

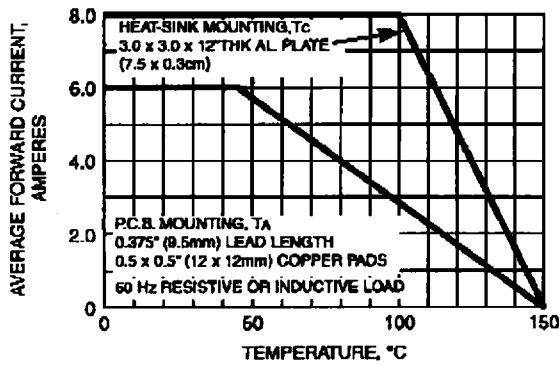
	SYMBOLS	KBU 8A	KBU 8B	KBU 8D	KBU 8G	KBU 8J	KBU 8K	KBU 8M	UNITS
Maximum repetitive peak reverse voltage	VRRM	50	100	200	400	600	800	1000	Volts
Maximum RMS voltage	VRMS	35	70	140	280	420	560	700	Volts
Maximum DC blocking voltage	VDC	50	100	200	400	600	800	1000	Volts
Maximum average forward rectified output current at TC=100°C (NOTE 1, 3) TA=45°C (NOTE 2)	IAV	8.0 6.0							Amps
Peak forward surge current single half sine-wave superimposed on rated load (JEDEC Method) TJ=150°C	IFSM	300.0							Amps
Maximum instantaneous forward voltage drop per leg at 8.0A	VF	1.0							Volts
Maximum DC reverse current at rated DC blocking voltage per leg TA=25°C TA=125°C	IR	10.0 1.0							µA mA
Typical thermal resistance per leg (NOTE 2) (NOTE 3)	ReJA ReJC	18.0 3.0							°C/W
Operating junction and storage temperature range	TJ, TSTG	-50 to +150							°C

**NOTES:**

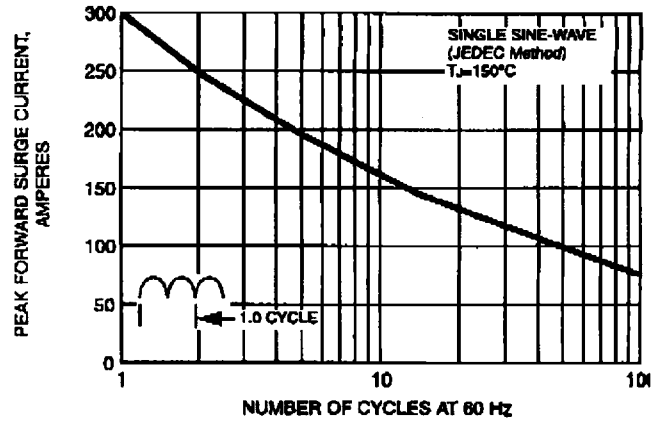
- (1) Recommended mounting position is to bolt down on heatsink with silicone thermal compound for maximum heat transfer with #6 screw
- (2) Units mounted in free air, no heatsink, P.C.B. at 0.375" (9.5mm) lead length with 0.5 x 0.5" (12 x 12mm) copper pads
- (3) Units mounted on a 3.0 x 3.0" x 0.11" thick (7.5 x 7.5 x 0.3cm) Al. Plate heatsink

**RATINGS AND CHARACTERISTICS CURVES KBU8A THRU KBU8M**

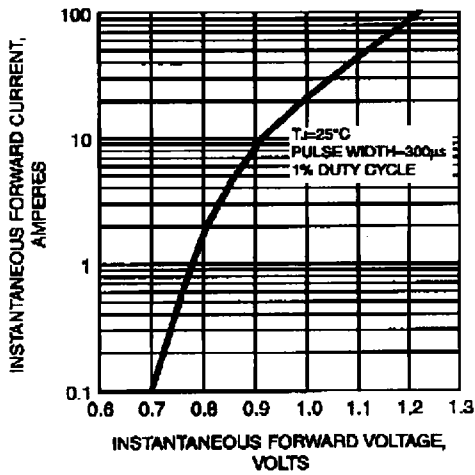
**FIG. 1 - DERATING CURVE OUTPUT RECTIFIED CURRENT**



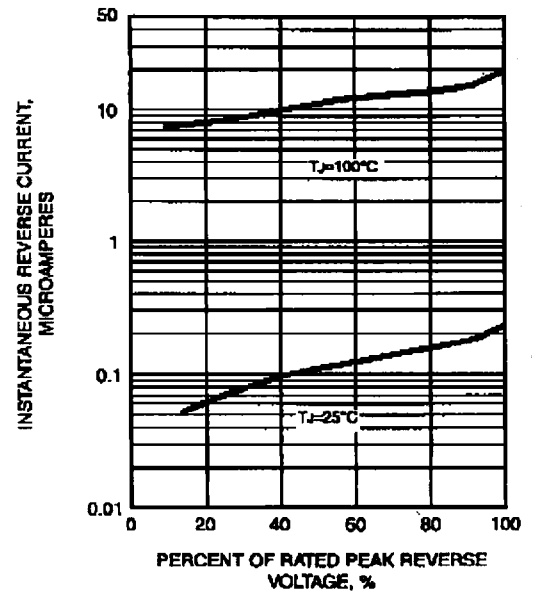
**FIG. 2 - MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT**



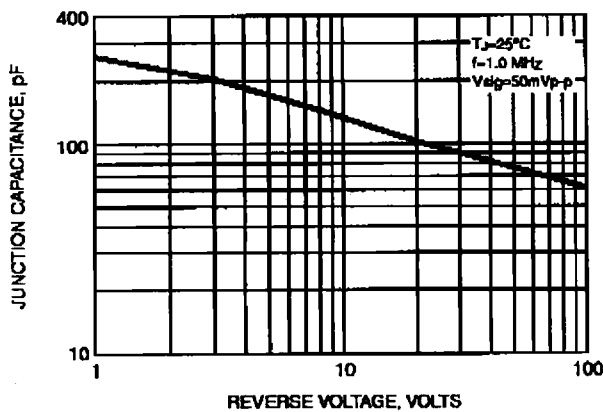
**FIG. 3 - TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS PER LEG**



**FIG. 4 - TYPICAL REVERSE LEAKAGE CHARACTERISTICS PER LEG**

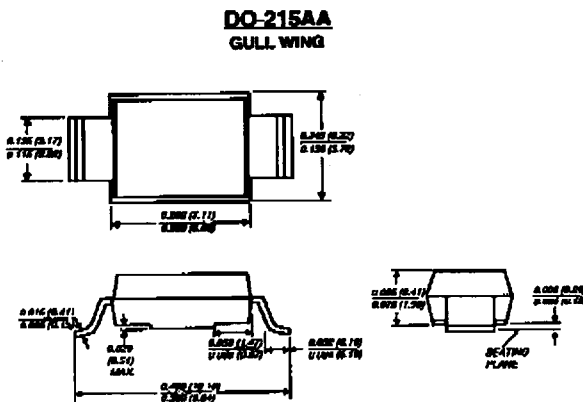
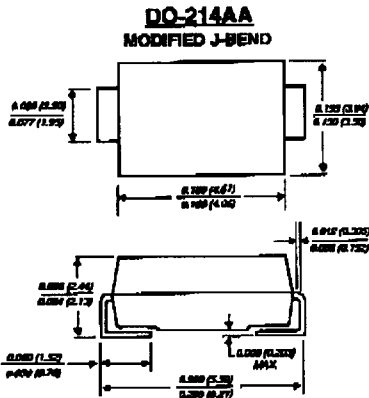


**FIG. 5 - TYPICAL JUNCTION CAPACITANCE PER LEG**



# SMBG AND SMBJ5.0 THRU 170CA

**SURFACE MOUNT TRANSZORB™ TRANSIENT VOLTAGE SUPPRESSOR**  
*Stand-off Voltage - 5.0 to 170 Volts Peak Pulse Power - 600 Watts*



Dimensions in inches and (millimeters)

## FEATURES

- ◆ Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- ◆ For surface mounted applications in order to optimize board space
- ◆ Low profile package
- ◆ Built-in strain relief
- ◆ Glass passivated junction
- ◆ Low incremental surge resistance
- ◆ 600W peak pulse power capability with a 10/1000µs waveform, repetition rate (duty cycle): 0.01%
- ◆ Excellent clamping capability
- ◆ Fast response time: typically less than 1.0ps from 0 volts to V(BR) for unidirectional and 5.0ns for bidirectional types
- ◆ For devices with V(BR) ≥ 10V, I<sub>D</sub> are typically less than 1.0µA
- ◆ High temperature soldering guaranteed: 250°C/10 seconds at terminals



## MECHANICAL DATA

**Case:** JEDEC DO214AA / DO215AA molded plastic body over passivated junction  
**Terminals:** Solder plated, solderable per MIL-STD-750, Method 2026  
**Polarity:** For unidirectional types the color band denotes the cathode, which is positive with respect to the anode under normal TVS operation  
**Mounting Position:** Any  
**Weight:** 0.003 ounces, 0.093 gram

## DEVICES FOR BIDIRECTIONAL APPLICATIONS

For bidirectional use suffix C or CA for types SMB-5.0 thru SMB-170 (eg. SMBG5.0C, SMBJ170CA).  
 Electrical characteristics apply in both directions

## MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

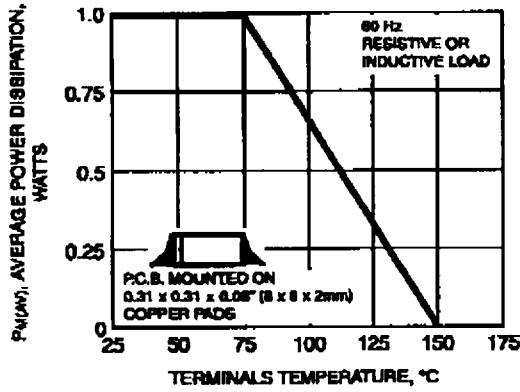
	SYMBOLS	VALUE	UNITS
Peak pulse power dissipation with a 10/1000µs waveform (NOTES 1, 2, FIG. 1)	PPPM	Minimum 600	Watts
Peak pulse current with a 10/1000µs waveform (NOTE 1)	IPPM	SEE TABLE 1	Amps
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) (NOTES 2, 3) - unidirectional only	I <sub>FSM</sub>	100.0	Amps
Maximum instantaneous forward voltage at 50A (NOTE 3) unidirectional only	V <sub>F</sub>	3.5	Volts
Operating junction and storage temperature range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

- NOTES:**  
 (1) Non-repetitive current pulse, per Fig.3 and derated above T<sub>a</sub>=25°C per Fig. 2  
 (2) Mounted on 0.2 x 0.2" (5.0 x 5.0mm) copper pads to each terminal  
 (3) Measured on 8.3ms single half sine-wave. For uni-directional devices only.

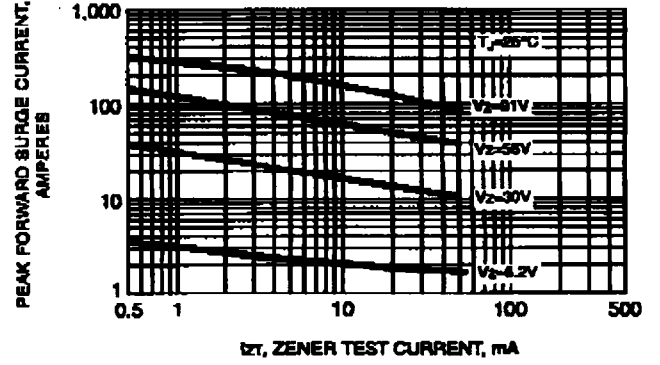


**RATINGS AND CHARACTERISTIC CURVES GLL4735 THRU GLL4763A**

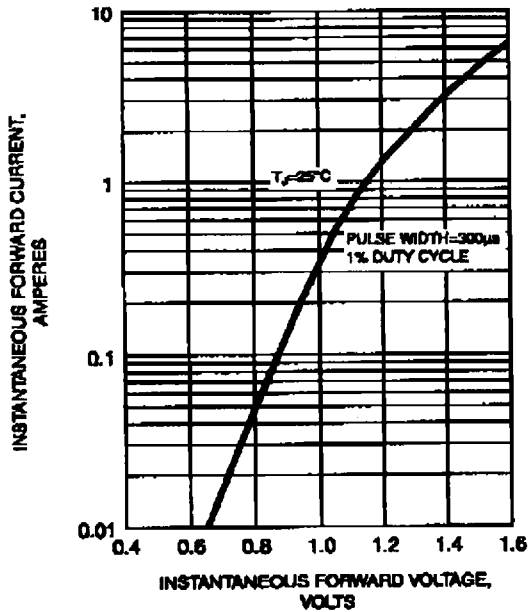
**FIG. 1 - MAXIMUM CONTINUOUS POWER DISSIPATION**



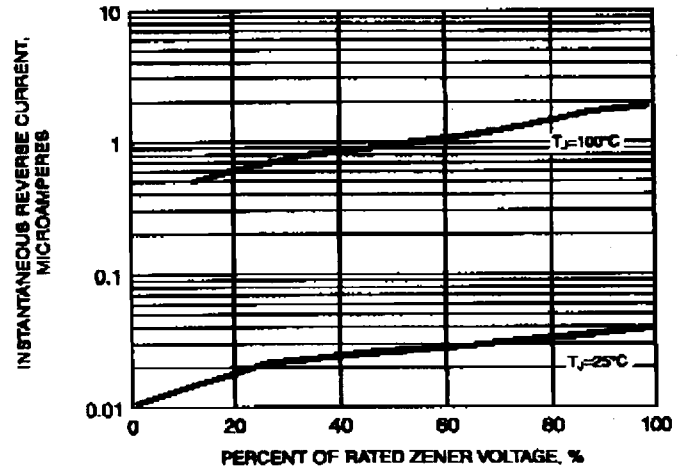
**FIG. 2 - TYPICAL ZENER IMPEDANCE**



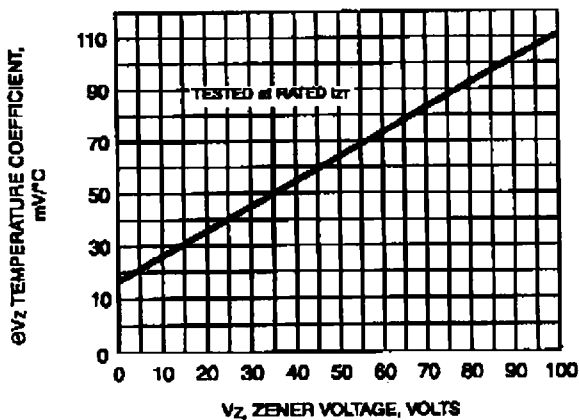
**FIG. 3 - TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS FOR GLL4763**



**FIG. 4 - TYPICAL REVERSE CHARACTERISTICS**



**FIG. 5 - TYPICAL TEMPERATURE COEFFICIENTS**



**ELECTRICAL CHARACTERISTICS (T<sub>A</sub>=25°C unless otherwise noted) TABLE 1**

Device Type Gull Wing Lead	Device Type Modified "J" Bond Lead	Device Marking Code UNI BI	Breakdown Voltage V (BR)(Volts) (NOTE 1) (MIN / MAX)	Test Current at I <sub>T</sub> (mA)	Stand-off Voltage V <sub>WM</sub> (Volts)	Maximum Reverse Leakage I <sub>D</sub> at V <sub>WM</sub> (µA) (NOTE 2)	Maximum Peak Pulse Surge Current I <sub>PPM</sub> (NOTE 2) (Amps)	Maximum Clamping Voltage at I <sub>PPM</sub> V <sub>C</sub> (Volts)
SMBG5.0	SMBJ5.0	KD KD	8.40 / 7.92	10	5.0	800	62.5	9.6
SMBG5.0A	SMBJ5.0A	KE KE	8.40 / 7.07	10	5.0	800	65.2	9.2
SMBG6.0	SMBJ6.0	KF KF	6.67 / 8.15	10	6.0	800	52.6	11.4
SMBG6.0A	SMBJ6.0A	KG KG	6.67 / 7.37	10	6.0	800	58.9	10.3
SMBG6.5	SMBJ6.5	KH AH	7.22 / 8.82	10	6.5	500	48.8	12.3
SMBG6.5A	SMBJ6.5A	KK AK	7.22 / 7.98	10	6.5	500	53.6	11.2
SMBG7.0	SMBJ7.0	KL KL	7.78 / 9.51	10	7.0	200	45.1	13.3
SMBG7.0A	SMBJ7.0A	KM KM	7.78 / 8.60	10	7.0	200	50.0	12.0
SMBG7.5	SMBJ7.5	KN AN	8.33 / 10.2	1.0	7.5	100	42.0	14.3
SMBG7.5A	SMBJ7.5A	KP AP	8.33 / 9.21	1.0	7.5	100	46.5	12.9
SMBG8.0	SMBJ8.0	KQ AQ	8.89 / 10.9	1.0	8.0	50	40.0	15.0
SMBG8.0A	SMBJ8.0A	KR AR	8.89 / 9.83	1.0	8.0	50	44.1	13.6
SMBG8.5	SMBJ8.5	KS AS	9.44 / 11.5	1.0	8.5	20	37.7	15.9
SMBG8.5A	SMBJ8.5A	KT AT	9.44 / 10.4	1.0	8.5	20	41.7	14.4
SMBG9.0	SMBJ9.0	KU AU	10.0 / 12.2	1.0	9.0	10	35.5	16.9
SMBG9.0A	SMBJ9.0A	KV AV	10.0 / 11.1	1.0	9.0	10	39.0	15.4
SMBG10	SMBJ10	KW AW	11.1 / 13.6	1.0	10	5.0	31.8	18.6
SMBG10A	SMBJ10A	KX AX	11.1 / 12.3	1.0	10	5.0	35.3	17.0
SMBG11	SMBJ11	KY KY	12.2 / 14.9	1.0	11	5.0	29.9	20.1
SMBG11A	SMBJ11A	KZ KZ	12.2 / 13.5	1.0	11	5.0	33.0	18.2
SMBG12	SMBJ12	LD BD	13.3 / 16.8	1.0	12	5.0	27.3	22.0
SMBG12A	SMBJ12A	LE BE	13.3 / 14.7	1.0	12	5.0	30.2	19.9
SMBG13	SMBJ13	LF LF	14.4 / 17.8	1.0	13	5.0	25.2	23.8
SMBG13A	SMBJ13A	LG LG	14.4 / 15.9	1.0	13	5.0	27.9	21.5
SMBG14	SMBJ14	LH BH	15.6 / 19.1	1.0	14	5.0	23.3	25.6
SMBG14A	SMBJ14A	LK BK	15.6 / 17.2	1.0	14	5.0	25.9	23.2
SMBG15	SMBJ15	LL BL	16.7 / 20.4	1.0	15	5.0	22.3	26.9
SMBG15A	SMBJ15A	LM BM	16.7 / 18.5	1.0	15	5.0	24.6	24.4
SMBG16	SMBJ16	LN LN	17.8 / 21.8	1.0	16	5.0	20.8	28.8
SMBG16A	SMBJ16A	LP LM	17.8 / 19.7	1.0	16	5.0	23.1	26.0
SMBG17	SMBJ17	LQ LQ	18.9 / 23.1	1.0	17	5.0	19.7	30.5
SMBG17A	SMBJ17A	LR LR	18.9 / 20.9	1.0	17	5.0	21.7	27.6
SMBG18	SMBJ18	LS BS	20.0 / 24.4	1.0	18	5.0	18.6	32.2
SMBG18A	SMBJ18A	LT BT	20.0 / 22.1	1.0	18	5.0	20.5	29.2
SMBG20	SMBJ20	LU LU	22.2 / 27.1	1.0	20	5.0	16.8	35.8
SMBG20A	SMBJ20A	LV LV	22.2 / 24.5	1.0	20	5.0	18.5	32.4
SMBG22	SMBJ22	LW BW	24.4 / 29.8	1.0	22	5.0	15.2	39.4
SMBG22A	SMBJ22A	LX BX	24.4 / 26.9	1.0	22	5.0	16.9	35.5
SMBG24	SMBJ24	LY BY	26.7 / 32.6	1.0	24	5.0	14.0	43.0
SMBG24A	SMBJ24A	LZ BZ	26.7 / 29.5	1.0	24	5.0	15.4	38.9
SMBG26	SMBJ26	MD CD	28.9 / 35.3	1.0	26	5.0	12.9	46.6
SMBG26A	SMBJ26A	ME CE	28.9 / 31.9	1.0	26	5.0	14.3	42.1
SMBG28	SMBJ28	MF MF	31.1 / 38.0	1.0	28	5.0	12.0	50.0
SMBG28A	SMBJ28A	MG MG	31.1 / 34.4	1.0	28	5.0	13.2	45.4
SMBG30	SMBJ30	MH CH	33.3 / 40.7	1.0	30	5.0	11.2	53.5
SMBG30A	SMBJ30A	MK CK	33.3 / 36.9	1.0	30	5.0	12.4	48.4
SMBG33	SMBJ33	ML CL	36.7 / 44.9	1.0	33	5.0	10.2	59.0
SMBG33A	SMBJ33A	MM CM	36.7 / 40.6	1.0	33	5.0	11.3	53.3
SMBG36	SMBJ36	MN CN	40.0 / 48.9	1.0	36	5.0	9.3	64.3
SMBG36A	SMBJ36A	MP CP	40.0 / 44.2	1.0	36	5.0	10.3	58.1
SMBG40	SMBJ40	MQ CQ	44.4 / 54.3	1.0	40	5.0	8.4	71.4
SMBG40A	SMBJ40A	MR CR	44.4 / 49.1	1.0	40	5.0	9.3	64.5
SMBG43	SMBJ43	MS CS	47.8 / 58.4	1.0	43	5.0	7.8	78.7
SMBG43A	SMBJ43A	MT CT	47.8 / 52.8	1.0	43	5.0	8.6	69.4
SMBG45	SMBJ45	MU MU	50.0 / 61.1	1.0	45	5.0	7.5	80.3
SMBG45A	SMBJ45A	MV MV	50.0 / 55.3	1.0	45	5.0	8.3	72.7
SMBG48	SMBJ48	MW MW	53.3 / 65.1	1.0	48	5.0	7.0	85.5
SMBG48A	SMBJ48A	MX MX	53.3 / 58.9	1.0	48	5.0	7.8	77.4
SMBG51	SMBJ51	MY MY	56.7 / 69.3	1.0	51	5.0	6.8	91.1
SMBG51A	SMBJ51A	MZ MZ	56.7 / 62.7	1.0	51	5.0	7.3	82.4

