### 1.5A, 200V - 600V High Efficient Surface Mount Rectifiers

## FEATURES

- Glass passivated junction chip
- Ideal for automated placement
- Fast switching for high efficiency
- High surge current capability
- Compliant to RoHS Directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21



## DO-214AC (SMA)

## MECHANICAL DATA

Case: DO-214AC (SMA)
Molding compound: UL flammability classification rating 94V-0
Part No. with suffix "H" means AEC-Q101 qualified
Packing code with suffix "G" means green compound (halogen-free)
Moisture sensitivity level: level 1, per J-STD-020
Terminal: Matte tin plated leads, solderable per JESD22-B102
Meet JESD 201 class 2 whisker test
Polarity: Indicated by cathode band
Weight: 0.064 g (approximately)

| MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS ( $\mathrm{T}_{\mathrm{A}}=25^{\circ} \mathrm{C}$ unless otherwise noted) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| PARAMETER | SYMBOL | BYG20D | BYG20G | BYG20J | UNIT |
| Maximum repetitive peak reverse voltage | $V_{\text {RRM }}$ | 200 | 400 | 600 | V |
| Maximum RMS voltage | $\mathrm{V}_{\text {RMS }}$ | 140 | 280 | 420 | V |
| Maximum DC blocking voltage | $V_{D C}$ | 200 | 400 | 600 | V |
| Maximum average forward rectified current | $\mathrm{I}_{\text {F(AV) }}$ | 1.5 |  |  | A |
| Peak forward surge current, 8.3 ms single half sine-wave superimposed on rated load | $\mathrm{I}_{\text {FSM }}$ | 30 |  |  | A |
| Maximum instantaneous forward voltage $\mathrm{I}_{\mathrm{F}}=1.0 \mathrm{~A}$ <br> (Note 1) $\mathrm{I}_{\mathrm{F}}=1.5 \mathrm{~A}$ | $V_{F}$ | $\begin{aligned} & \hline 1.3 \\ & 1.4 \end{aligned}$ |  |  | V |
| $\begin{array}{ll}\text { Maximum reverse current @ rated } \mathrm{V}_{\mathrm{R}} & \mathrm{T}_{\mathrm{J}}=25^{\circ} \mathrm{C} \\ & \mathrm{T}_{\mathrm{J}}=100^{\circ} \mathrm{C}\end{array}$ | $I_{R}$ | $\begin{gathered} 1 \\ 10 \end{gathered}$ |  |  | $\mu \mathrm{A}$ |
| Pulse energy in avalanche mode, non repetitive (Inductive load switch off ), L=120mH | $\mathrm{E}_{\text {RSM }}$ | 20 |  |  | mJ |
| Maximum reverse recovery time (Note 2) | $\mathrm{t}_{\mathrm{rr}}$ | 75 |  |  | ns |
|  | $\mathrm{R}_{\text {өJL }}$ | 25 |  |  | /W |
|  | $\mathrm{R}_{\text {өJA }}$ | 100 |  |  | , |
| Operating junction temperature range | $\mathrm{T}_{J}$ | -55 to +150 |  |  | ${ }^{\circ} \mathrm{C}$ |
| Storage temperature range | $\mathrm{T}_{\text {STG }}$ | - 55 to +150 |  |  | ${ }^{\circ} \mathrm{C}$ |

Note 1: Pulse test with PW=300 $\mu \mathrm{s}$, $1 \%$ duty cycle
Note 2: Reverse recovery test conditions: $I_{F}=0.5 \mathrm{~A}, \mathrm{I}_{\mathrm{R}}=1.0 \mathrm{~A}, \mathrm{I}_{\mathrm{R}}=0.25 \mathrm{~A}$
Note 3: Mount on PC board with $5 \mathrm{~mm} \times 5 \mathrm{~mm}$ copper pads as heatsink.

ORDERING INFORMATION

| PART NO. | PART NO. SUFFIX | $\begin{gathered} \text { PACKING } \\ \text { CODE } \end{gathered}$ | PACKING CODE SUFFIX | PACKAGE | PACKING |
| :---: | :---: | :---: | :---: | :---: | :---: |
| BYG20x <br> (Note 1) | H | R3 | G | SMA | 1,800 / 7" Plastic reel |
|  |  | R2 |  | SMA | 7,500 / 13" Paper reel |
|  |  | M2 |  | SMA | 7,500 / 13" Plastic reel |
|  |  | F3 |  | Folded SMA | 1,800 / 7" Plastic reel |
|  |  | F2 |  | Folded SMA | 7,500 / 13" Paper reel |
|  |  | F4 |  | Folded SMA | 7,500 / 13" Plastic reel |

Note 1: "x" defines voltage from 200V (BYG20D) to 600V (BYG20J)
EXAMPLE

| EXAMPLE <br> PART NO. | PART NO. | PART NO. <br> SUFFIX | PACKING <br> CODE | PACKING CODE <br> SUFFIX | DESCRIPTION |
| :---: | :---: | :---: | :---: | :---: | :---: |
| BYG20DHR3G | BYG20D | H | R3 | G | AEC-Q101 qualified <br> Green compound |

## RATINGS AND CHARACTERISTICS CURVES

( $\mathrm{T}_{\mathrm{A}}=25^{\circ} \mathrm{C}$ unless otherwise noted)

FIG. 1 FORWARD CURRENT DERATING CURVE


FIG. 3 MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT


FIG. 2 TYPICAL REVERSE CHARACTERISTICS


FIG. 4 TYPICAL FORWARD CHARACTERISTICS



PACKAGE OUTLINE DIMENSIONS DO-214AC (SMA)


| DIM. | Unit (mm) |  | Unit (inch) |  |
| :---: | :---: | :---: | :---: | :---: |
|  | Min | Max | Min | Max |
| A | 1.27 | 1.58 | 0.050 | 0.062 |
| B | 4.06 | 4.60 | 0.160 | 0.181 |
| C | 2.29 | 2.83 | 0.090 | 0.111 |
| D | 1.99 | 2.50 | 0.078 | 0.098 |
| E | 0.90 | 1.41 | 0.035 | 0.056 |
| F | 4.95 | 5.33 | 0.195 | 0.210 |
| G | 0.10 | 0.20 | 0.004 | 0.008 |
| H | 0.15 | 0.31 | 0.006 | 0.012 |

## SUGGESTED PAD LAYOUT



| Symbol | Unit (mm) | Unit (inch) |
| :---: | :---: | :---: |
| A | 1.68 | 0.066 |
| B | 1.52 | 0.060 |
| C | 3.93 | 0.155 |
| D | 2.41 | 0.095 |
| E | 5.45 | 0.215 |

## MARKING DIAGRAM

P/N = Specific Device Code
$\mathrm{G}=\quad$ Green Compound
$\mathrm{YW}=\quad$ Date Code
$F=\quad$ Factory Code

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