

## 3A, 20V - 200V Schottky Barrier Surface Mount Rectifier

### FEATURES

- Low power loss, high efficiency
- Ideal for automated placement
- Guard ring for over-voltage protection
- High surge current capability
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free

### APPLICATIONS

- Switching mode power supply (SMPS)
- Adapters
- Lighting application
- Converter

### MECHANICAL DATA

- Case: DO-214AC (SMA)
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- Polarity: Indicated by cathode band
- Weight: 0.070g (approximately)

| KEY PARAMETERS    |                |      |
|-------------------|----------------|------|
| PARAMETER         | VALUE          | UNIT |
| $I_F$             | 3              | A    |
| $V_{RRM}$         | 20 - 200       | V    |
| $I_{FSM}$         | 70             | A    |
| $T_J \text{ MAX}$ | 150            | °C   |
| Package           | DO-214AC (SMA) |      |
| Configuration     | Single die     |      |



DO-214AC (SMA)



| ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)        |              |              |        |        |        |        |        |         |         |         |                  |
|------------------------------------------------------------------------------------|--------------|--------------|--------|--------|--------|--------|--------|---------|---------|---------|------------------|
| PARAMETER                                                                          | SYMBOL       | SK 32A       | SK 33A | SK 34A | SK 35A | SK 36A | SK 39A | SK 310A | SK 315A | SK 320A | UNIT             |
| Marking code on the device                                                         |              | SK 32A       | SK 33A | SK 34A | SK 35A | SK 36A | SK 39A | SK 310A | SK 315A | SK 320A |                  |
| Repetitive peak reverse voltage                                                    | $V_{RRM}$    | 20           | 30     | 40     | 50     | 60     | 90     | 100     | 150     | 200     | V                |
| Reverse voltage, total rms value                                                   | $V_{R(RMS)}$ | 14           | 21     | 28     | 35     | 42     | 63     | 70      | 105     | 140     | V                |
| Forward current                                                                    | $I_F$        | 3            |        |        |        |        |        |         |         |         | A                |
| Surge peak forward current, 8.3ms single half sine-wave superimposed on rated load | $I_{FSM}$    | 70           |        |        |        |        |        |         |         |         | A                |
| Critical rate of rise of off-state voltage                                         | $dV/dt$      | 10,000       |        |        |        |        |        |         |         |         | V/ $\mu\text{s}$ |
| Junction temperature                                                               | $T_J$        | - 55 to +150 |        |        |        |        |        |         |         |         | °C               |
| Storage temperature                                                                | $T_{STG}$    | - 55 to +150 |        |        |        |        |        |         |         |         | °C               |

**THERMAL PERFORMANCE**

| PARAMETER                              | SYMBOL          | TYP | UNIT |
|----------------------------------------|-----------------|-----|------|
| Junction-to-lead thermal resistance    | $R_{\theta JL}$ | 25  | °C/W |
| Junction-to-ambient thermal resistance | $R_{\theta JA}$ | 66  | °C/W |

**ELECTRICAL SPECIFICATIONS** ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

| PARAMETER                           |                                     | CONDITIONS                    | SYMBOL | TYP | MAX  | UNIT    |
|-------------------------------------|-------------------------------------|-------------------------------|--------|-----|------|---------|
| Forward voltage <sup>(1)</sup>      | SK32A<br>SK33A<br>SK34A             | $I_F = 3A, T_J = 25^{\circ}C$ | $V_F$  | -   | 0.55 | V       |
|                                     | SK35A<br>SK36A                      |                               |        | -   | 0.72 | V       |
|                                     | SK39A<br>SK310A                     |                               |        | -   | 0.85 | V       |
|                                     | SK315A<br>SK320A                    |                               |        | -   | 0.95 | V       |
|                                     |                                     |                               |        |     |      |         |
| Reverse current @ rated $V_R^{(2)}$ | SK32A<br>SK33A<br>SK34A             | $T_J = 25^{\circ}C$           | $I_R$  | -   | 500  | $\mu A$ |
|                                     | SK35A<br>SK36A                      |                               |        | -   | 200  | $\mu A$ |
|                                     | SK39A<br>SK310A<br>SK315A<br>SK320A |                               |        | -   | 100  | $\mu A$ |
| Reverse current @ rated $V_R^{(2)}$ | SK32A<br>SK33A<br>SK34A             | $T_J = 100^{\circ}C$          | $I_R$  | -   | 10   | mA      |
|                                     | SK35A<br>SK36A                      |                               |        | -   | 5    | mA      |
|                                     | SK39A<br>SK310A<br>SK315A<br>SK320A |                               |        | -   | -    | mA      |
| Reverse current @ rated $V_R^{(2)}$ | SK32A<br>SK33A<br>SK34A             | $T_J = 125^{\circ}C$          | $I_R$  | -   | -    | mA      |
|                                     | SK35A<br>SK36A                      |                               |        | -   | 10   | mA      |
|                                     | SK39A<br>SK310A<br>SK315A<br>SK320A |                               |        | -   | 0.5  | mA      |

**Notes:**

1. Pulse test with  $PW = 0.3\text{ms}$
2. Pulse test with  $PW = 30\text{ms}$

**ORDERING INFORMATION**

| ORDERING CODE <sup>(1)</sup> | PACKAGE        | PACKING             |
|------------------------------|----------------|---------------------|
| SK3xA                        | DO-214AC (SMA) | 7,500 / Tape & Reel |

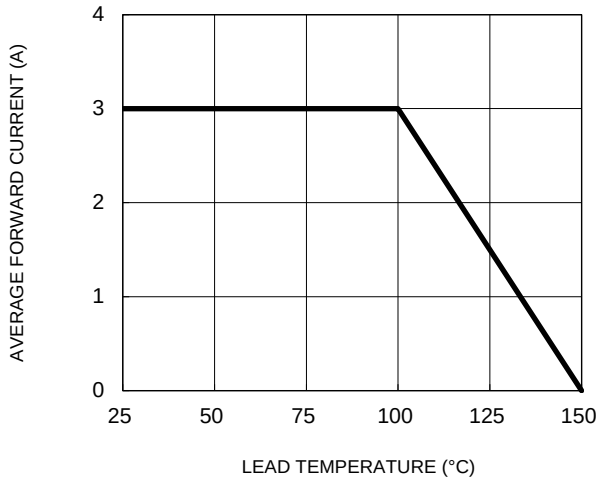
**Notes:**

1. "x" defines voltage from 20V(SK32A) to 200V(SK320A)

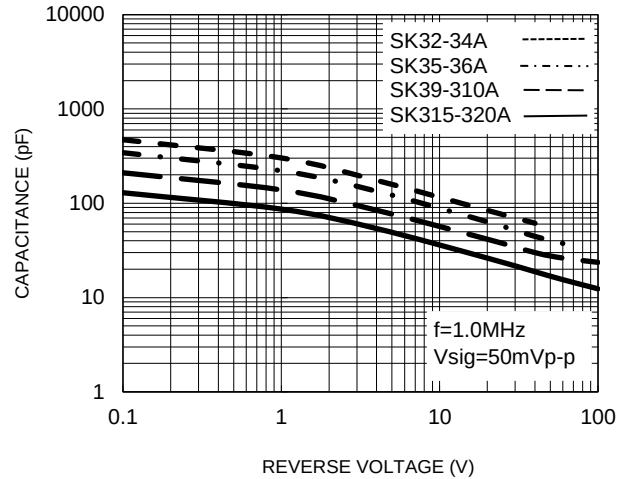
## CHARACTERISTICS CURVES

( $T_A = 25^\circ\text{C}$  unless otherwise noted)

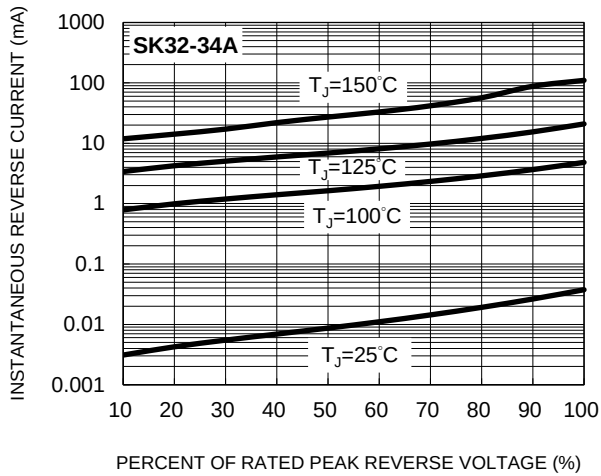
**Fig.1 Forward Current Derating Curve**



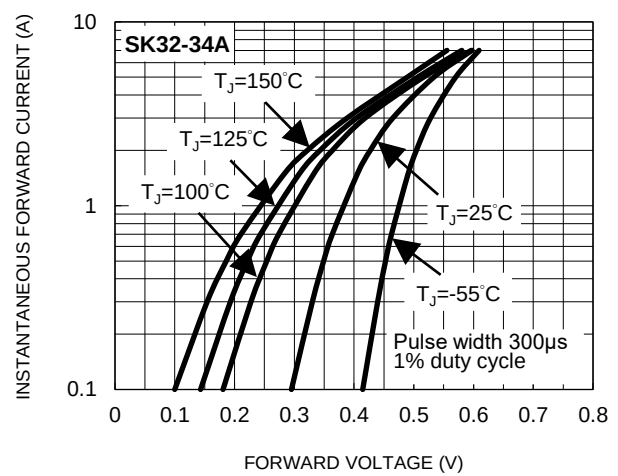
**Fig.2 Typical Junction Capacitance**



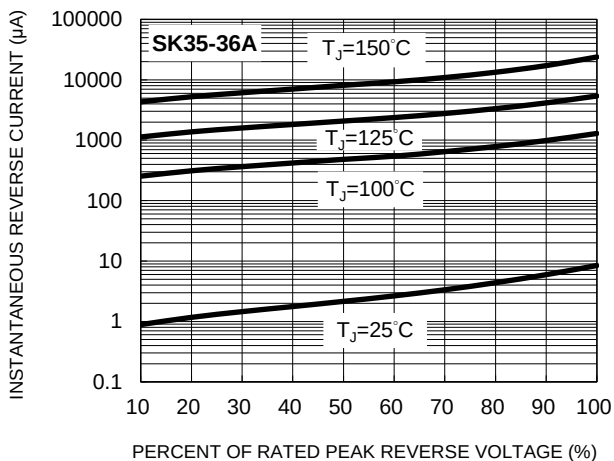
**Fig.3 Typical Reverse Characteristics**



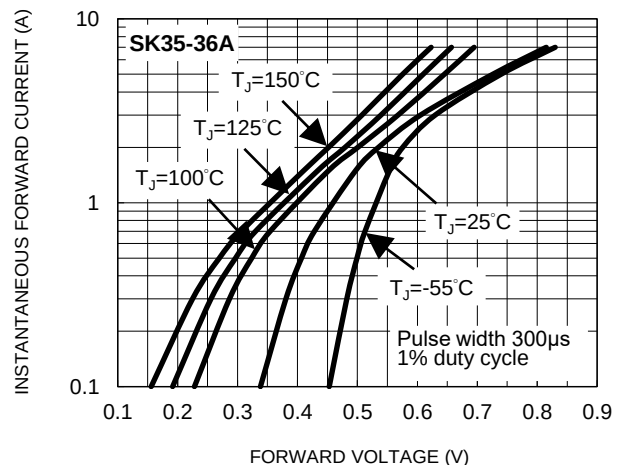
**Fig.4 Typical Forward Characteristics**



**Fig.5 Typical Reverse Characteristics**



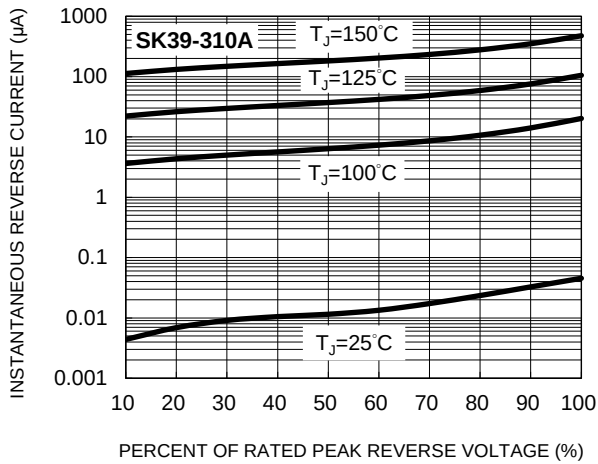
**Fig.6 Typical Forward Characteristics**



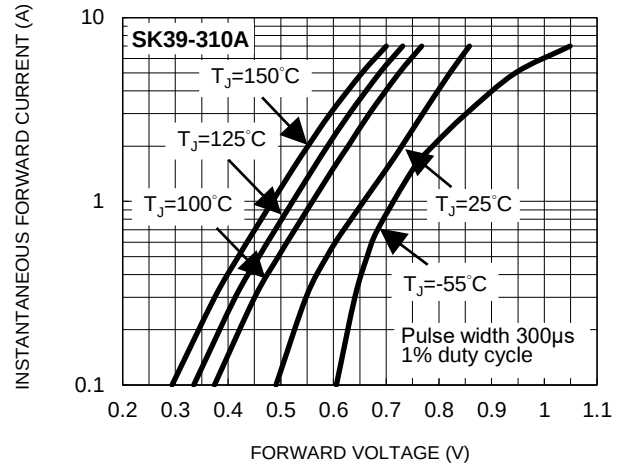
## CHARACTERISTICS CURVES

( $T_A = 25^\circ\text{C}$  unless otherwise noted)

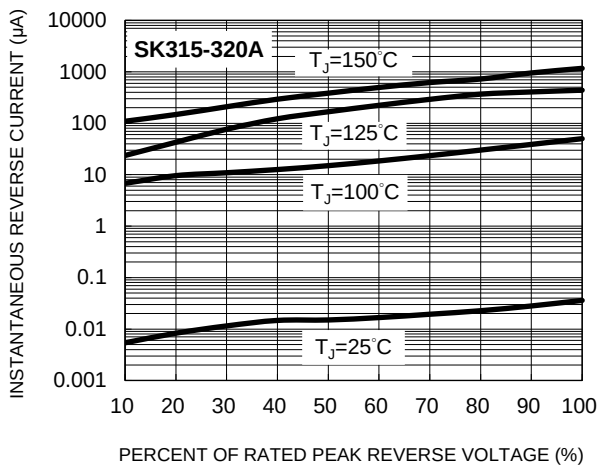
**Fig.7 Typical Reverse Characteristics**



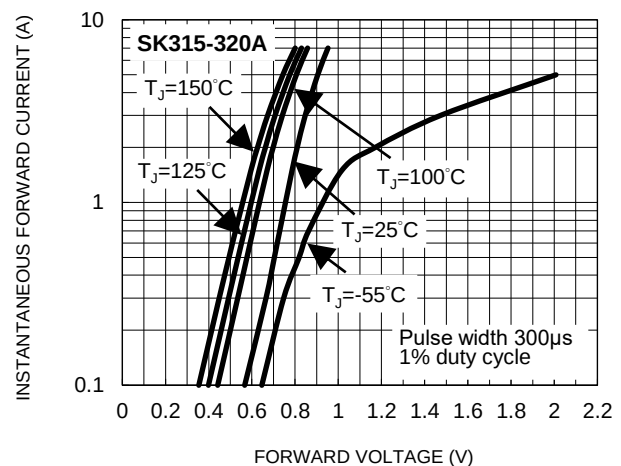
**Fig.8 Typical Forward Characteristics**



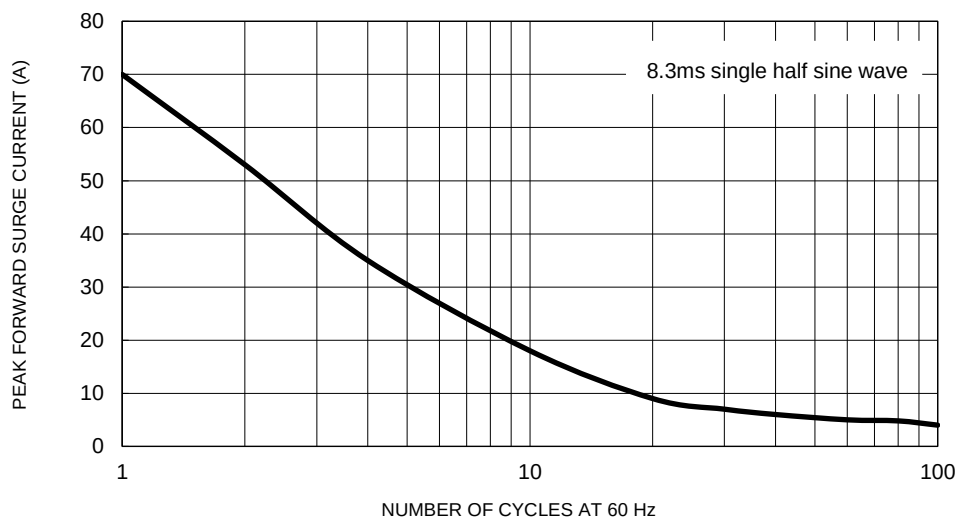
**Fig.9 Typical Reverse Characteristics**



**Fig.10 Typical Forward Characteristics**



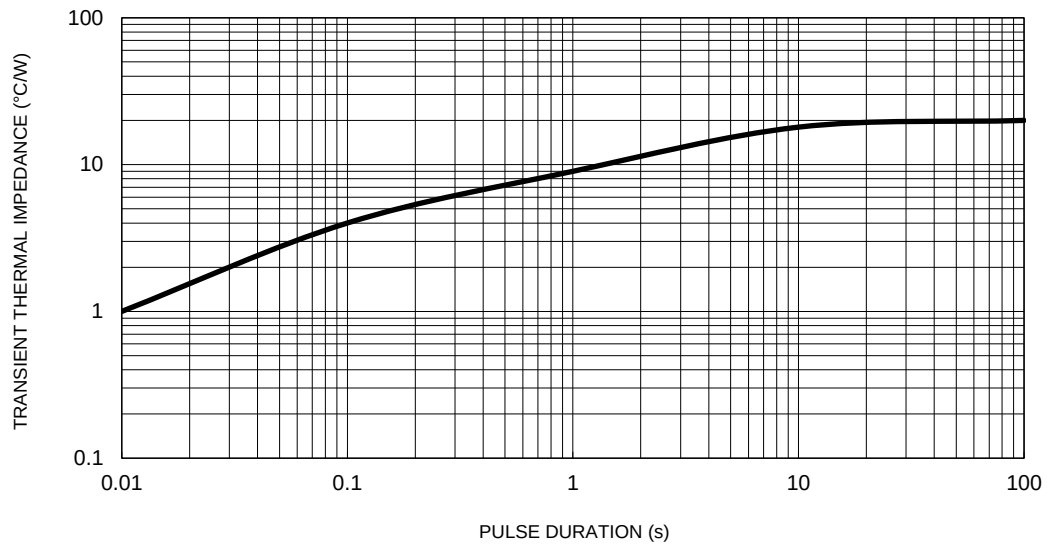
**Fig.11 Maximum Non-Repetitive Forward Surge Current**



## CHARACTERISTICS CURVES

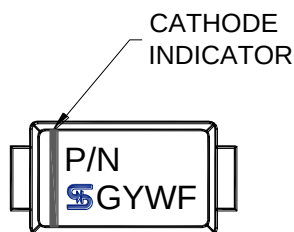
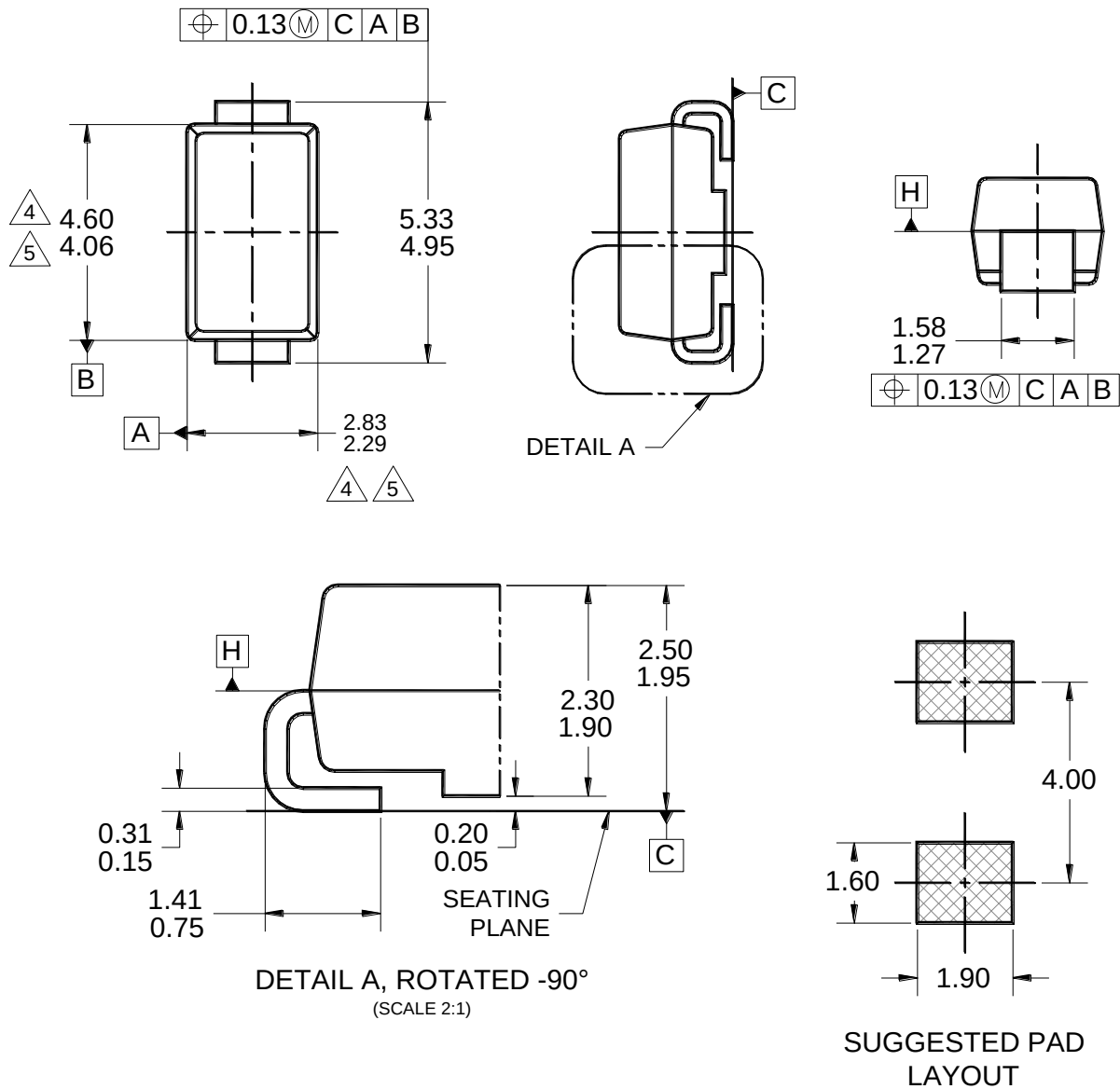
( $T_A = 25^\circ\text{C}$  unless otherwise noted)

**Fig.12 Typical Transient Thermal Characteristics**



## PACKAGE OUTLINE DIMENSIONS

### DO-214AC (SMA)



### MARKING DIAGRAM

P/N = MARKING CODE  
G = GREEN COMPOUND  
YW = DATE CODE  
F = FACTORY CODE

### NOTES: UNLESS OTHERWISE SPECIFIED

- ALL DIMENSIONS ARE IN MILLIMETERS.
- DIMENSIONING AND TOLERANCING PER ASME Y14.5M-1994.
- PACKAGE OUTLINE REFERENCE: JEDEC DO-214, VARIATION AC, ISSUE D.
- MOLDED PLASTIC BODY DIMENSIONS DO NOT INCLUDE MOLD FLASH.
- MOLDED PLASTIC BODY LATERAL DIMENSIONS TO BE DETERMINED AT DATUM PLANE H.
- DWG NO. REF: HQ2SD07-DO214SMC-034 REV A.

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