

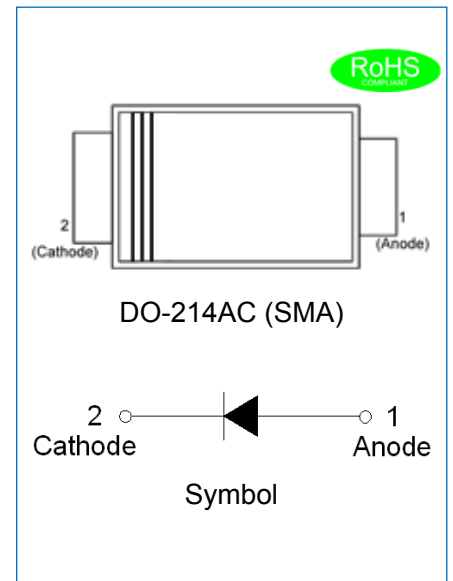


## US1A~US1M ULTRA FASTRE COVERY RECTIFIER

Rev.3.1

### DESCRIPTION

- ✧ Plastic package has underwriters laboratory flammability classification 94V-0
- ✧ For surface mounted applications in order to optimize board space
- ✧ Glass passivated chip junction
- ✧ Lead free in comply with EU RoHS 2011/65/EU directives
- ✧ Ultrafast recovery time for high efficiency
- ✧ Meets MSL level 1



### MECHANICAL DATA

- ✧ Case: JEDEC DO-214AC molded plastic
- ✧ Terminals: Solder plated, solderable per J-STD-002
- ✧ Polarity: Color band denotes cathode end
- ✧ Weight: 0.06599gram

### ABSOLUTE MAXIMUM RATING AND ELECTRICAL CHARACTERISTICS

(Rating at 25°C ambient temperature unless otherwise specified.)

Parameter	Symbol	US1A	US1B	US1D	US1G	US1J	US1K	US1M	Unit
Maximum repetitive peak reverse voltage	$V_{RRM}$	50	100	200	400	600	800	1000	V
Maximum RMS voltage	$V_{RMS}$	35	70	140	280	420	560	700	V
Maximum DC blocking voltage	$V_{DC}$	50	100	200	400	600	800	1000	V
Maximum average forward current at $T_A=75^\circ\text{C}$	$I_{F(AV)}$	1.0							A
Peak forward surge current: 8.3ms single half sine-wave superimposed on rated load	$I_{FSM}$	30							A
Maximum forward voltage @ $I_F=1\text{A}$	$V_F$	1.0		1.3		1.7			V
Maximum DC reverse current at rated DC blocking voltage	$T_j=25^\circ\text{C}$	5							$\mu\text{A}$
	$T_j=100^\circ\text{C}$	50							$\mu\text{A}$
Typical junction capacitance $V_R=4.0\text{V}$ , $f=1\text{MHz}$	$C_J$	7							pF
Maximum reverse recovery time $I_F=0.5\text{A}$ , $I_R=1\text{A}$ , $I_{rr}=0.25\text{A}$	$t_{rr}$	50				75			ns
Operating junction and storage temperature range	$T_j, T_{stg}$	-55 to +150							$^\circ\text{C}$

**THERMAL RESISTANCES**

Symbol	Parameter	US1A	US1B	US1D	US1G	US1J	US1K	US1M	Unit
$R_{th(j-a)}$	Junction to ambient (note1)	50							$^{\circ}C/W$

Note1: Thermal resistance from junction to ambient mounted on P.C.B. with 5.0 mm x 5.0 mm copper pad areas.

**MARKING**



U	Ultra Fast Recovery Rectifier
S	Surface Mount
1	$I_{F(AV)}=1A$
G	$V_{RRM}:400V$

$\underline{x}H1$ : Month, 1、2、3 ~ 9、A、B、C

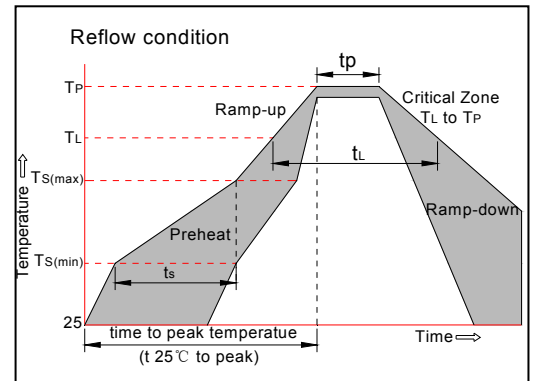
$3\underline{x}1$ :

2018	2019	2020	2021	2022	2023	2024
H	I	J	K	L	M	N
2025	2026	2027	2028	2029	2030	...
O	P	Q	R	S	T	...

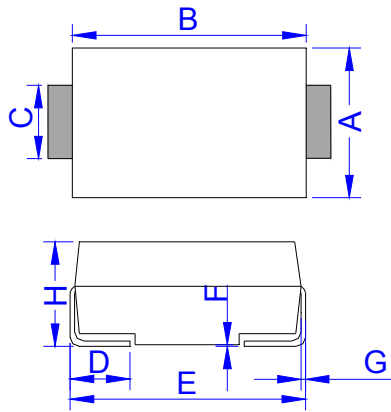
$3H\underline{x}$ : Batch number

**SOLDERING PARAMETERS**

Reflow Condition		Pb-Free assembly (see figure at right)
Pre Heat	-Temperature Min ( $T_{s(min)}$ )	+150 $^{\circ}C$
	-Temperature Max( $T_{s(max)}$ )	+200 $^{\circ}C$
	-Time (Min to Max) ( $t_s$ )	60-180 secs.
Average ramp up rate (Liquidus Temp ( $T_L$ ) to peak)		3 $^{\circ}C/sec.$ Max
$T_{s(max)}$ to $T_L$ - Ramp-up Rate		3 $^{\circ}C/sec.$ Max
Reflow	-Temperature( $T_L$ )(Liquidus)	+217 $^{\circ}C$
	-Temperature( $t_L$ )	60-150 secs.
Peak Temp ( $T_P$ )		+260(+0/-5) $^{\circ}C$
Time within 5 $^{\circ}C$ of actual Peak Temp ( $t_p$ )		20-40secs.
Ramp-down Rate		6 $^{\circ}C/sec.$ Max
Time 25 $^{\circ}C$ to Peak Temp ( $T_P$ )		8 min. Max
Do not exceed		+260 $^{\circ}C$



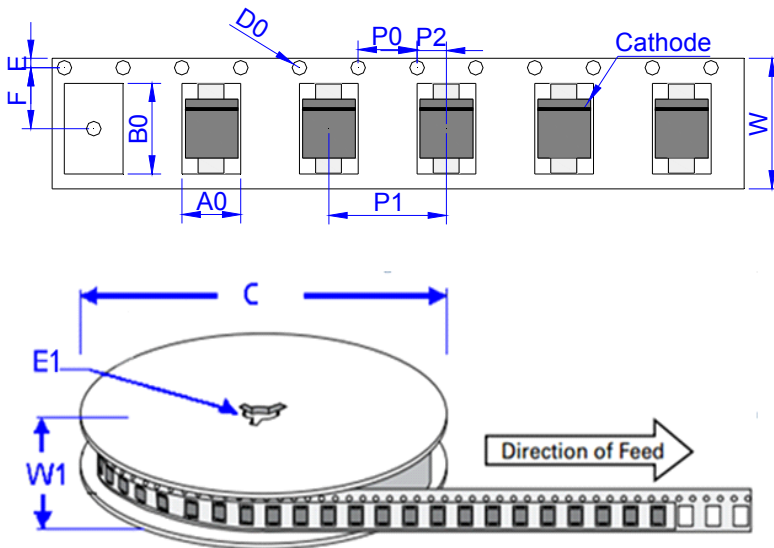
PACKAGE MECHANICAL DATA



DO-214AC (SMA)

Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.18	2.90	0.086	0.114
B	3.99	4.57	0.157	0.180
C	1.10	2.21	0.043	0.087
D	0.76	1.52	0.030	0.060
E	4.70	5.69	0.185	0.224
F		0.203		0.008
G	0.152	0.305	0.006	0.012
H	1.70	2.45	0.067	0.096

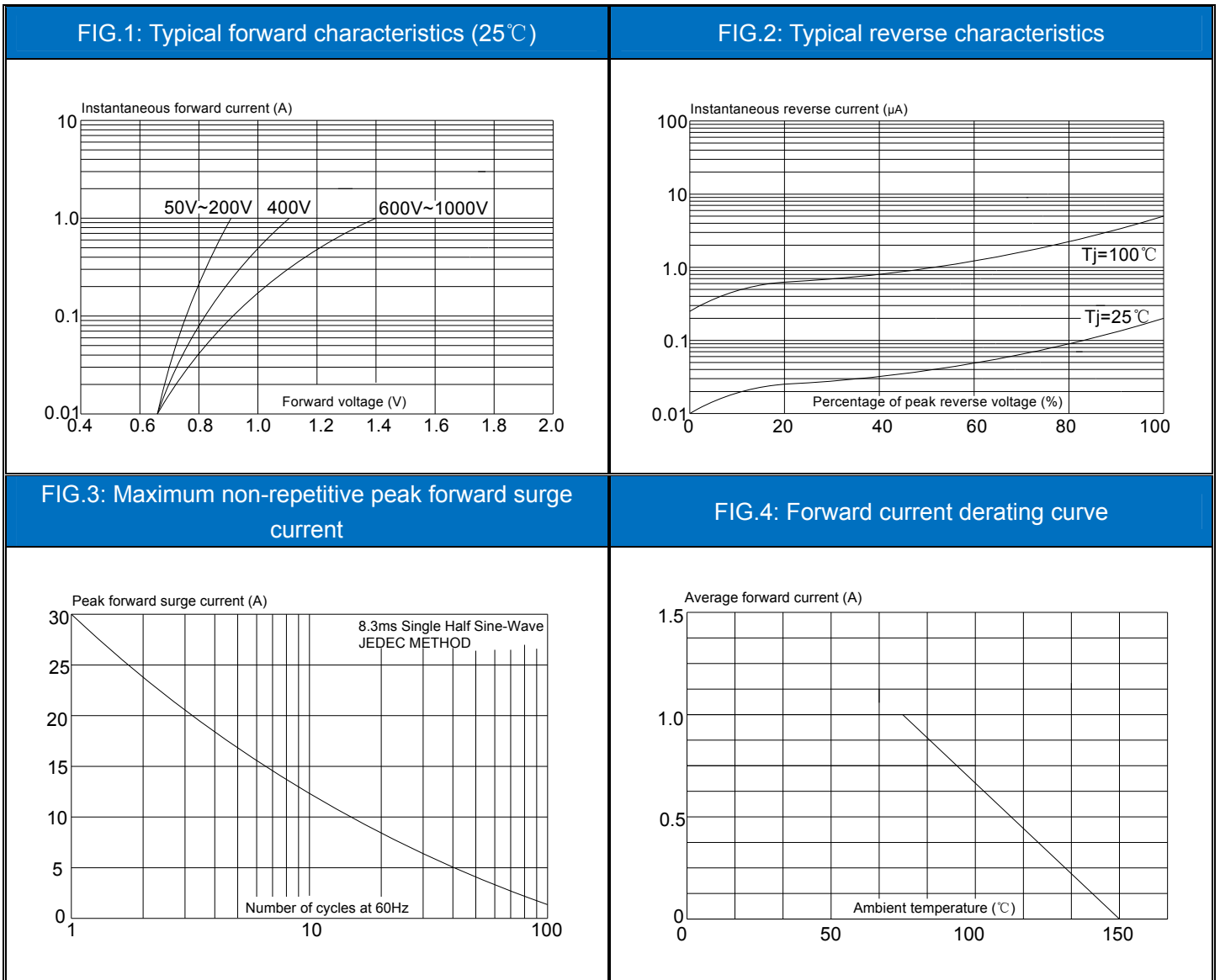
TAPE AND REEL SPECIFICATION-SMA



Ref.	Dimensions	
	Millimeters	Inches
A0	2.79 ± 0.3	0.110 ± 0.012
B0	5.33 ± 0.3	0.210 ± 0.012
C	330.0	13.0
D0	1.55 ± 0.1	0.061 ± 0.004
E	1.75 ± 0.2	0.069 ± 0.008
E1	13.3 ± 0.3	0.524 ± 0.012
F	5.5 ± 0.2	0.217 ± 0.008
P0	4.00 ± 0.2	0.157 ± 0.008
P1	4.00 ± 0.2	0.157 ± 0.008
P2	2.00 ± 0.2	0.079 ± 0.008
W	12.0 ± 0.2	0.472 ± 0.008
W1	15.7 ± 2.0	0.618 ± 0.079

OUTLINE	UNIT WEIGHT (g/PCS) typ.	REEL (PCS)	PER CARTON (PCS)	REEL DIAMETERS (mm)
TAPING	0.06599	7,500	120,000	330

CHARACTERISTICS CURVE



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