Ultra Fast Efficient Rectifiers

1 General Description

1.1 Features

- Glass passivated cavity-free junction
- Ideal for surface mount automotive applications
- Ultrafast recovery time for high efficiency
- Built-in strain relief
- Easy pick and place
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Lead (Pb)-free component
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC
- High temperature soldering guaranteed:260℃/10 seconds at terminals

REVERSE VOLTAGE

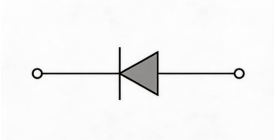
50-600V

FORWARD CURRENT

3Ampere

1.2 Typical Applications

- Power Supply
- Inverter
- Converter
- Freewheeling diode applications



1.3 Mechanical Data

- Case: JEDEC SMC(DO-214AB) molded plastic body
- Terminals: solder plated ,solderable per MIL-STD-750,method 2026
- Polarity: color band denotes cathode end
- Mounting Position: Any

2 Maximum Ratings(TA=25℃ Unless otherwise specified)

PARAMETER	SYMBOL	ES3AC	ES3BC	ES3DC	ES3FC	ES3GC	ES3JC	UNIT
Maximum Repetitive Peak Reverse Voltage	V_{RRM}	50	100	200	300	400	600	V
Maximum RMS Voltage	V_{RMS}	35	70	140	210	280	420	V
Maximum DC Blocking Voltage	V_{DC}	50	100	200	300	400	600	V
Maximum Average Forward Rectified Current at T_L=110℃	$I_{F(AV)}$	3.0						A
Peak Forward Surge Current 8.3 ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	115					105	A
Operating Temperature Range	T_J	-55 to +150						℃
Storage Temperature Range	T_{STG}	-55 to +150						℃
Typical Thermal Resistance(Note3)	$R_{\theta JA}$	16						℃/W

Notes:

1.Reverse Recovery Test conditions: I_F=0.5A,I_R =1.0A,I_{RR} =0.25A.

2.Measured at 1MH and applied reverse voltage of 4.0 Volts

3.Thermal Resistance From Junction To Ambient P C B Mounted On 0.2x0.2"(5.0x5.0mm) Copper Pad Areas

4.Single phase, half wave, 60Hz resistive or inductive load,for capacitive load, derate by 20%.

3 Electrical Characteristics(TA=25℃ Unless otherwise specified)

PARAMETER		SYMBOL	ES3AC	ES3BC	ES3DC	ES3FC	ES3GC	ES3JC	UNIT
Maximum instantaneous Forward Voltage at 3.0A		V_F	0.95			1.25		1.7	V
Reverse Current at Rated DC Blocking Voltage	Ta =25℃	I_R	5.0						μA
	Ta=125℃		120						
Maximum Reverse Recovery Time(Note1)		t_{rr}	35						ns
Typical Junction Capacitance(Note2)		C_J	45						pF

4 Characteristics Curves(TA=25℃ Unless otherwise specified)

FIG.1-TYPICALFORWARDCURRENTDERATINGCURVE

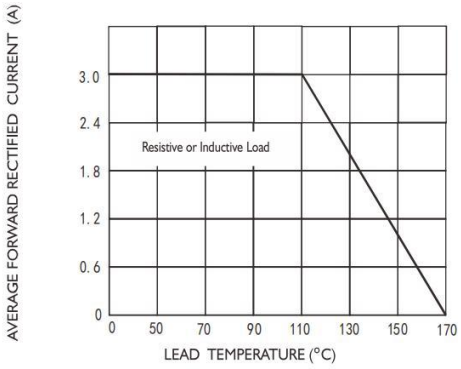


FIG.2-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

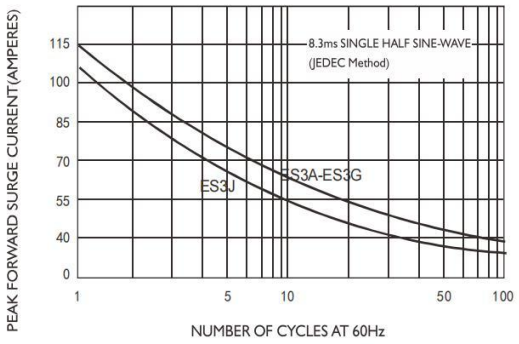


FIG.3-TYPICAL InsTANTANEOUS FORWARD CHARACTERISTICS

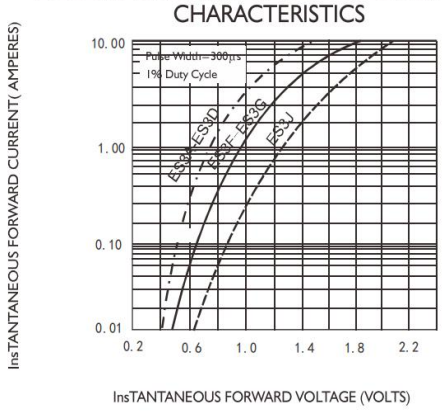


FIG.4-TYPICAL REVERSE CHARACTERISTICS

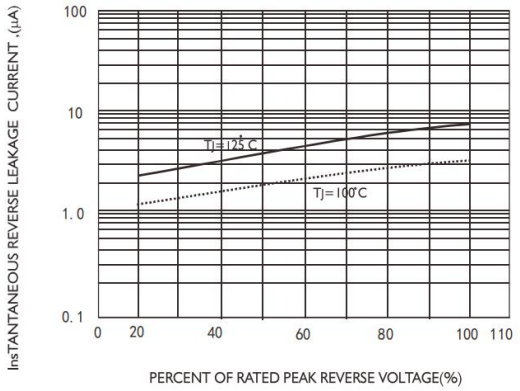
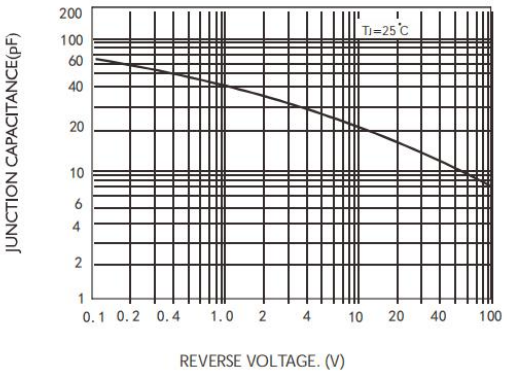
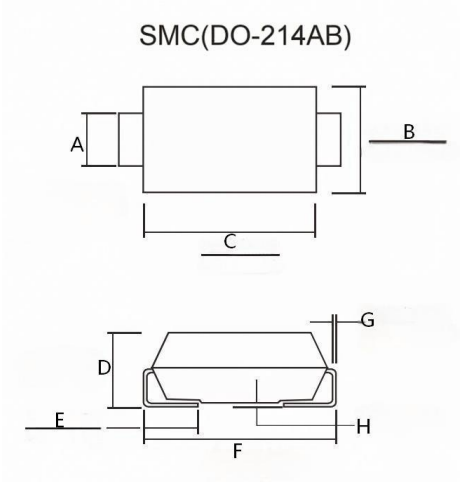


FIG.5-TYPICAL JUNCTION CAPACITANCE



5 Package Outline Dimensions



Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	2.80	3.20	0.110	0.126
B	5.50	6.10	0.216	0.240
C	6.60	7.20	0.260	0.283
D	2.13	2.44	0.080	0.096
E	0.76	1.52	0.030	0.060
F	7.50	8.10	0.295	0.319
G	0.152	0.305	0.006	0.012
H	-	0.203	-	0.008

6 Ordering Information

PACKAGE	UNIT WEIGHT (g)	REEL (pcs)	CARTON (pcs)
SMC	Approximate 0.32	3000	42000

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