



Surface Mount Super Fast Recovery Rectifier Diode

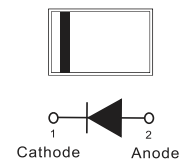
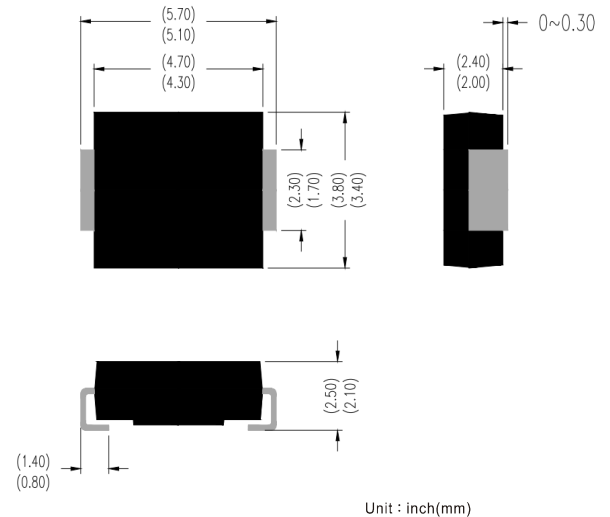
Features

- Glass passivated junction chip
- Ideal for automated placement
- Super fast recovery time for high
- efficiency High forward surge capability
- AEC-Q101 qualified
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260°C

Mechanical Data

- Package: DO-214AA (SMB)
- Polarity: Indicated by cathode band
- Epoxy: UL 94V-0 rate flame retardant
- Mounting Position: Any

DO-214AA (SMB)



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

Parameter	Symbol	ES3A BQ	ES3B BQ	ES3C BQ	ES3D BQ	ES3F BQ	ES3G BQ	ES3H BQ	ES3J BQ	Unit
Repetitive peak reverse voltage	V_{RRM}	50	100	150	200	300	400	500	600	V
Reverse voltage, total rms value	$V_{R(RMS)}$	35	70	105	140	210	280	350	420	V
Forward current	$I_{F(AV)}$	3								A
Surge peak forward current, 8.3 ms single half sine-wave superimposed on rated load per diode	I_{FSM}	100								A
Junction temperature	T_J	- 55 to +150								°C
Storage temperature	T_{STG}	- 55 to +150								°C

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

Parameter	Symbol	Limit	Unit
Junction-to-lead thermal resistance	$R_{\theta JL}$	24	°C/W
Junction-to-ambient thermal resistance	$R_{\theta JA}$	84	°C/W
Junction-to-case thermal resistance	$R_{\theta JC}$	26	°C/W

Note:

Units mounted on recommended PCB (10mm x 10mm Cu pad test board)



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

Parameter		Conditions	Symbol	TYP	MAX	Unit
Forward voltage per diode ⁽¹⁾	ES3ABQ ES3BBQ ES3CBQ ES3DBQ	$I_F = 1.5\text{A}, T_J = 25^\circ\text{C}$	V_F	0.80	0.92	V
	ES3FBQ ES3GBQ			0.90	1.04	V
	ES3HBQ ES3JBQ			1.11	1.30	V
	ES3ABQ ES3BBQ ES3CBQ ES3DBQ	$I_F = 3.0\text{A}, T_J = 25^\circ\text{C}$	V_F	0.86	1.00	V
	ES3FBQ ES3GBQ			0.98	1.13	V
	ES3HBQ ES3JBQ			1.24	1.45	V
	ES3ABQ ES3BBQ ES3CBQ ES3DBQ	$I_F = 1.5\text{A}, T_J = 125^\circ\text{C}$	V_F	0.66	0.75	V
	ES3FBQ ES3GBQ			0.73	0.85	V
	ES3HBQ ES3JBQ			0.85	0.98	V
	ES3ABQ ES3BBQ ES3CBQ ES3DBQ	$I_F = 3.0\text{A}, T_J = 125^\circ\text{C}$	V_F	0.73	0.84	V
	ES3FBQ ES3GBQ			0.83	0.95	V
	ES3HBQ ES3JBQ			0.99	1.13	V
Reverse current @ rated V_R per diode ⁽²⁾		$T_J = 25^\circ\text{C}$	I_R	-	10	μA
		$T_J = 125^\circ\text{C}$		-	100	μA
Junction capacitance	ES3ABQ ES3BBQ ES3CBQ ES3DBQ	1 MHz, $V_R=4.0\text{V}$	C_J	46	-	pF
	ES3FBQ ES3GBQ			41	-	pF
	ES3HBQ ES3JBQ			34	-	pF
Reverse recovery time		$I_F=0.5\text{A}, I_R=1.0\text{A}$ $I_{RR}=0.25\text{A}$	t_{rr}	-	35	ns

Notes:

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



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

Fig.1 Forward Current Derating Curve

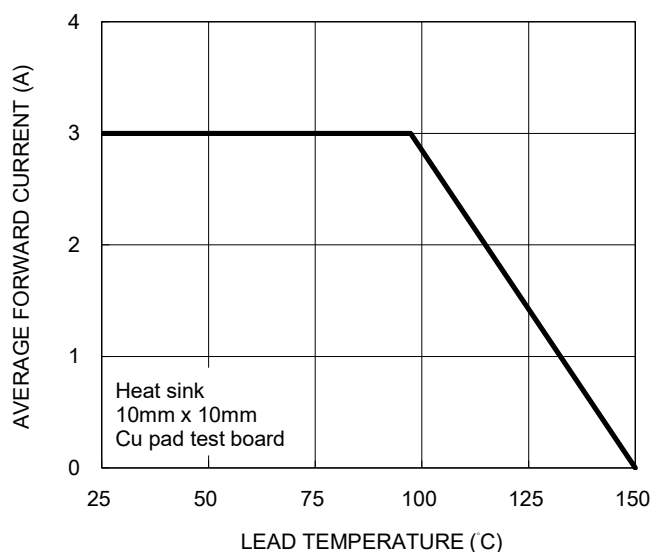


Fig.2 Typical Junction Capacitance

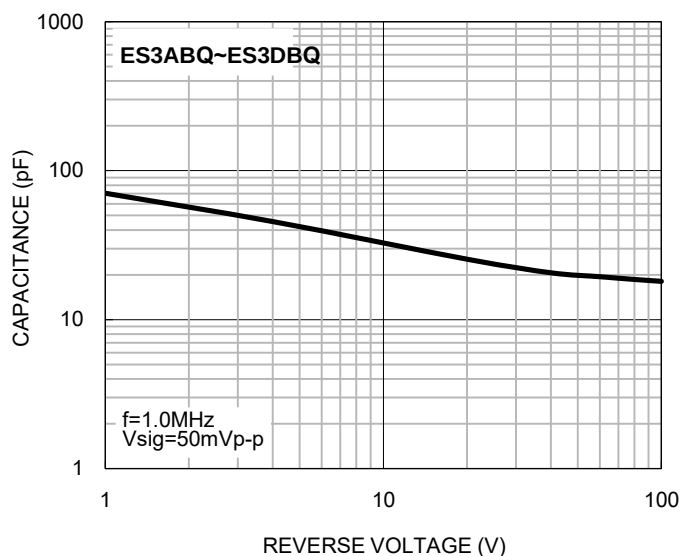


Fig.3 Typical Reverse Characteristics

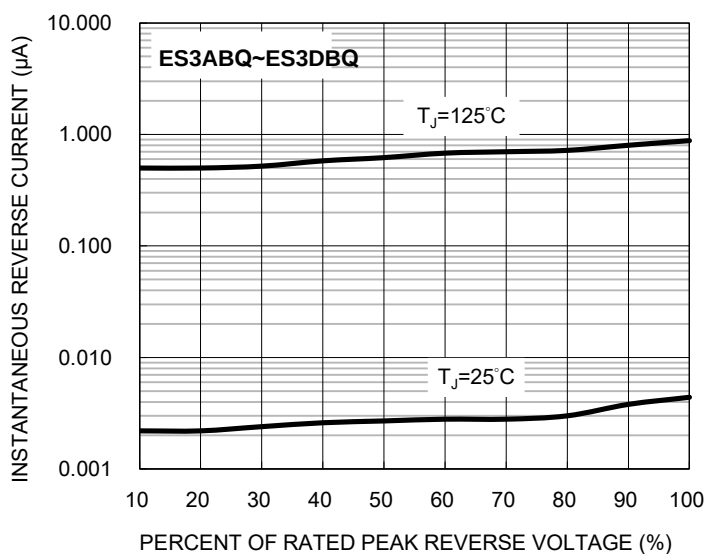


Fig.4 Typical Forward Characteristics

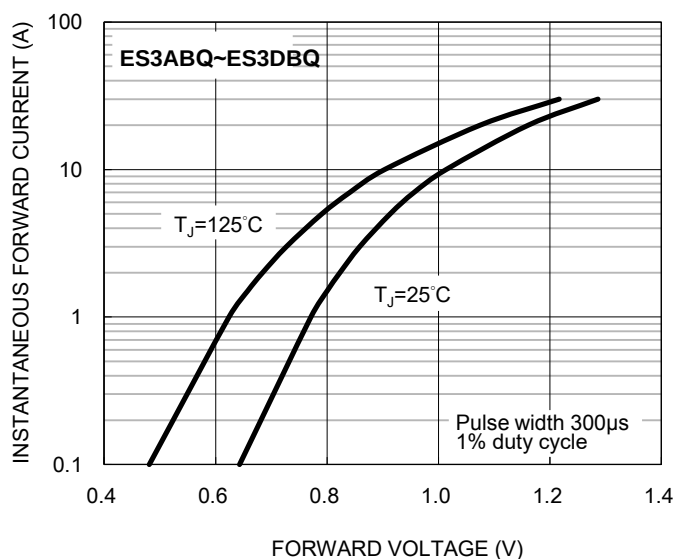


Fig.5 Typical Junction Capacitance

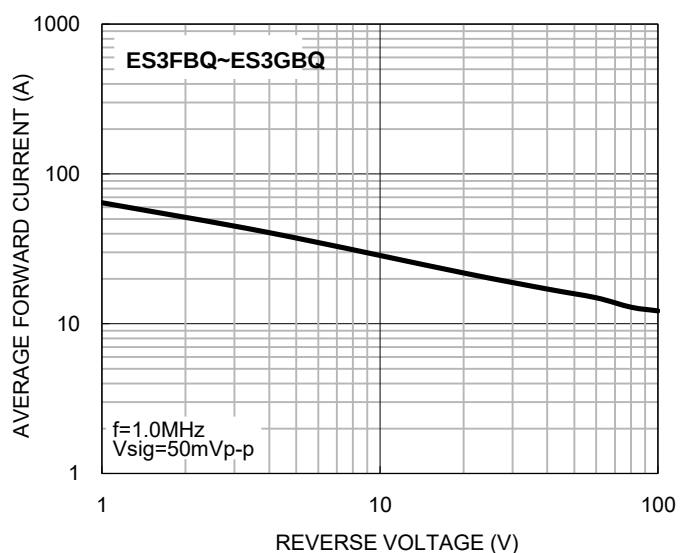
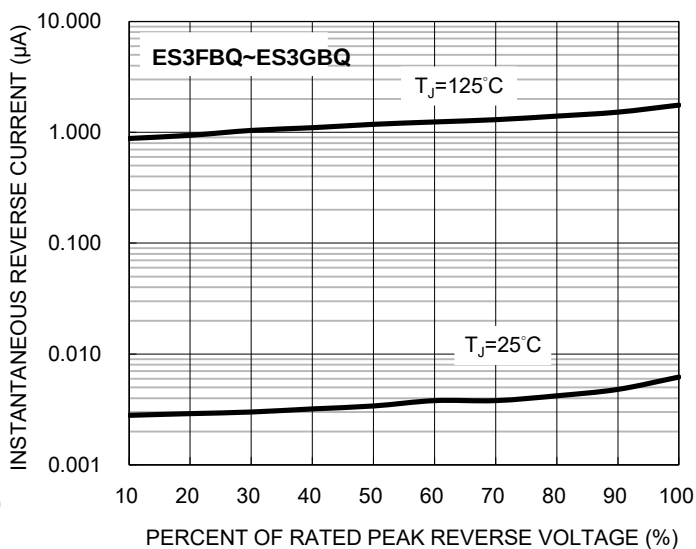


Fig.6 Typical Reverse Characteristics



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

Fig.7 Typical Forward Characteristics

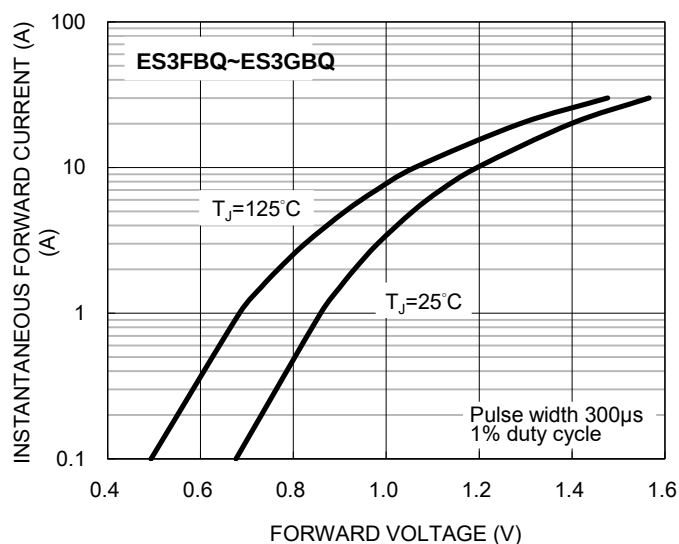


Fig.8 Typical Junction Capacitance

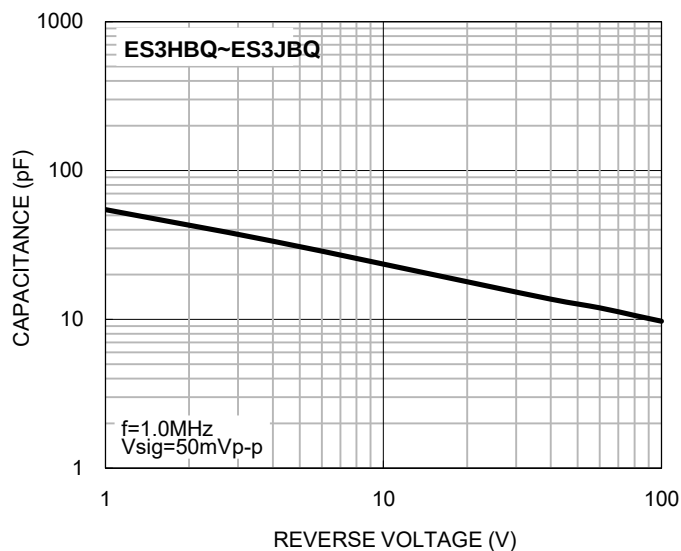


Fig.9 Typical Reverse Characteristics

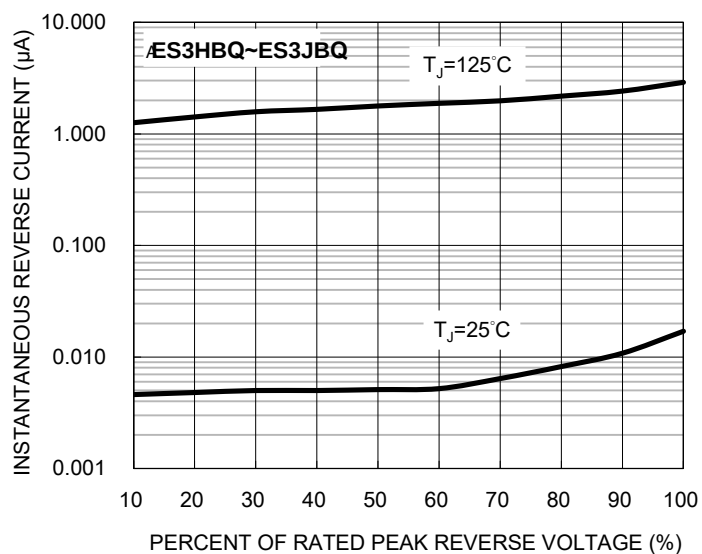


Fig.10 Typical Forward Characteristics

