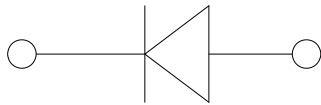
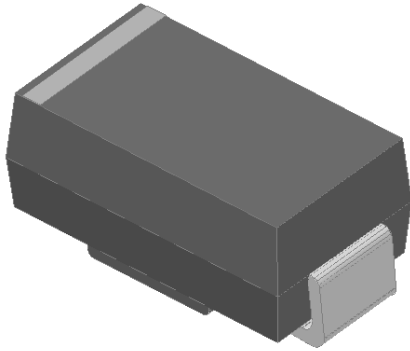


## Surface Mount Zener Diodes



### Features

- Low profile package
- Ideal for automated placement
- Glass passivated chip junction
- High forward surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C

### Mechanical Data

- **Package:** DO-214AC (SMA)  
Molding compound meets UL 94 V-0 flammability rating, RoHS-compliant, halogen-free
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Polarity:** Cathode line denotes the cathode end

### ■Maximum Ratings (T<sub>a</sub>=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	MAX
DC power dissipation at T <sub>L</sub> = 75 °C	P <sub>D</sub>	W	1.5
Maximum instantaneous forward voltage@ I <sub>F</sub> =200mA	V <sub>F</sub>	V	1.5
Maximum junction temperature	T <sub>j</sub>	°C	-55 to +150
Storage temperature range	T <sub>stg</sub>	°C	-55 to +150

### ■Thermal Characteristics (T<sub>a</sub>=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	Conditions	VALUE
Thermal resistance(Typical)	R <sub>θJ-L</sub> <sup>(1)</sup>	°C/W	junction to lead	30
	R <sub>θJ-A</sub> <sup>(1)</sup>	°C/W	junction to ambient	170

Note

(1) Thermal resistance from junction to ambient and from junction to lead mounted on P.C.B. with 0.2" x 0.2" (5.0 mm x 5.0 mm) copper pad areas

### ■Electrical Characteristics (T<sub>a</sub>=25°C Unless otherwise specified)

Part Number	Nominal Zener voltage			Test current	Maximum dynamic impedance resistance			Maximum reverse leakage current		Maximum DC Zener Current
	Min V <sub>Z</sub> <sup>(1)</sup> at I <sub>ZT</sub>	Typ. V <sub>Z</sub> <sup>(1)</sup> at I <sub>ZT</sub>	Max V <sub>Z</sub> <sup>(1)</sup> at I <sub>ZT</sub>	I <sub>ZT</sub>	Z <sub>ZT</sub> at I <sub>ZT</sub>	Z <sub>ZK</sub> at I <sub>ZK</sub>	I <sub>ZK</sub>	I <sub>R</sub>	Test voltage V <sub>R</sub>	I <sub>ZM</sub>
	V	V	V	mA	Ω	Ω	mA	μA	V	mA
SMA5913A	3.14	3.3	3.47	113.6	10.0	500	1.00	100.0	1.0	274.0
SMA5914A	3.42	3.6	3.78	104.2	9.0	500	1.00	100.0	1.0	251.0
SMA5915A	3.71	3.9	4.10	96.1	7.5	500	1.00	50.0	1.0	232.0
SMA5916A	4.09	4.3	4.52	87.2	6.0	500	1.00	10.0	1.0	210.0



# SMA59XXA SERIES

SMA5917A	4.47	4.7	4.94	79.8	5.0	500	1.00	10.0	1.5	192.0
SMA5918A	4.85	5.1	5.36	73.5	4.0	350	1.00	10.0	2.0	177.0

Part Number	Nominal Zener voltage			Test current	Maximum dynamic impedance resistance			Maximum reverse leakage current		Maximum DC Zener Current
	Min $V_Z^{(1)}$ at $I_{ZT}$	Typ. $V_Z^{(1)}$ at $I_{ZT}$	Max $V_Z^{(1)}$ at $I_{ZT}$	$I_{ZT}$	$Z_{ZT}$ at $I_{ZT}$	$Z_{ZK}$ at $I_{ZK}$	$I_{ZK}$	$I_R$	Test voltage $V_R$	$I_{ZM}$
	V	V	V	mA	$\Omega$	$\Omega$	mA	$\mu A$	V	mA
SMA5919A	5.32	5.6	5.88	66.9	2.0	250	1.00	10.0	3.0	161.0
SMA5920A	5.89	6.2	6.51	60.5	2.0	200	1.00	10.0	4.0	146.0
SMA5921A	6.46	6.8	7.14	55.1	2.5	200	1.00	10.0	5.2	133.0
SMA5922A	7.13	7.5	7.88	50.0	3.0	400	0.50	10.0	6.0	121.0
SMA5923A	7.79	8.2	8.61	45.7	3.5	400	0.50	10.0	6.5	110.0
SMA5924A	8.65	9.1	9.56	41.2	4.0	500	0.50	10.0	7.0	100.0
SMA5925A	9.50	10.0	10.50	37.5	4.5	500	0.25	10.0	8.0	91.0
SMA5926A	10.45	11.0	11.55	34.1	5.5	550	0.25	0.5	8.4	83.0
SMA5927A	11.40	12.0	12.60	31.2	6.5	550	0.25	0.5	9.1	76.0
SMA5928A	12.35	13.0	13.65	28.8	7.0	550	0.25	0.5	9.9	69.0
SMA5929A	14.25	15.0	15.75	25.0	9.0	600	0.25	0.5	11.4	61.0
SMA5930A	15.20	16.0	16.80	23.4	10.0	600	0.25	0.5	12.2	57.0
SMA5931A	17.10	18.0	18.90	20.8	12.0	650	0.25	0.5	13.7	50.0
SMA5932A	19.00	20.0	21.00	18.7	14.0	650	0.25	0.5	15.2	45.0
SMA5933A	20.90	22.0	23.10	17.0	17.5	650	0.25	0.5	16.7	41.0
SMA5934A	22.80	24.0	25.20	15.6	19.0	700	0.25	0.5	18.2	38.0
SMA5935A	25.65	27.0	28.35	13.9	23.0	700	0.25	0.5	20.6	34.0
SMA5936A	28.50	30.0	31.50	12.5	26.0	750	0.25	0.5	22.8	30.0
SMA5937A	31.35	33.0	34.65	11.4	33.0	800	0.25	0.5	25.1	27.0
SMA5938A	34.20	36.0	37.80	10.4	38.0	850	0.25	0.5	27.4	25.0
SMA5939A	37.05	39.0	40.95	9.6	45.0	900	0.25	0.5	29.7	23.0
SMA5940A	40.85	43.0	45.15	8.7	53.0	950	0.25	0.5	32.7	22.0
SMA5941A	44.65	47.0	49.35	8.0	67.0	1000	0.25	0.5	35.8	19.0
SMA5942A	48.45	51.0	53.55	7.3	70.0	1100	0.25	0.5	38.8	18.0



# SMA59XXA SERIES

SMA5943A	53.20	56.0	58.80	6.7	86.0	1300	0.25	0.5	42.6	16.0
SMA5944A	58.90	62.0	65.10	6.0	100.0	1500	0.25	0.5	47.1	14.0
SMA5945A	64.60	68.0	71.40	5.5	120.0	1700	0.25	0.5	51.7	13.0
SMA5946A	71.25	75.0	78.75	5.0	140.0	2000	0.25	0.5	56.0	12.0
SMA5947A	77.90	82.0	86.10	4.6	160.0	2500	0.25	0.5	62.2	11.0
SMA5948A	86.45	91.0	95.55	4.1	200.0	3000	0.25	0.5	69.2	10.0
SMA5949A	95.00	100.0	105.00	3.7	250.0	3100	0.25	0.5	76.0	9.0
SMA5950A	104.50	110.0	115.50	3.4	300.0	4000	0.25	0.5	83.6	8.6
SMA5951A	114.00	120.0	126.00	3.1	380.0	4500	0.25	0.5	91.2	7.8
SMA5952A	123.50	130.0	136.50	2.9	450.0	5000	0.25	0.5	98.8	7.0
SMA5953A	142.50	150.0	157.50	2.5	600.0	6000	0.25	0.5	114.0	6.4

Part Number	Nominal Zener voltage			Test current	Maximum dynamic impedance resistance			Maximum reverse leakage current		Maximum DC Zener Current
	Min $V_Z^{(1)}$ at $I_{ZT}$	Typ. $V_Z^{(1)}$ at $I_{ZT}$	Max $V_Z^{(1)}$ at $I_{ZT}$	$I_{ZT}$	$Z_{ZT}$ at $I_{ZT}$	$Z_{ZK}$ at $I_{ZK}$	$I_{ZK}$	$I_R$	Test voltage $V_R$	$I_{ZM}$
	V	V	V	mA	$\Omega$	$\Omega$	mA	$\mu A$	V	mA
SMA5954A	152.00	160.0	168.00	2.3	700.0	6500	0.25	0.5	121.6	5.8
SMA5955A	171.00	180.0	189.00	2.1	900.0	7000	0.25	0.5	136.8	5.2
SMA5956A	190.00	200.0	210.00	1.9	1200.0	8000	0.25	0.5	152.0	4.7

Notes:

(1) Nominal Zener voltage Range: 95% Typ.  $V_Z^{(1)}$  at  $I_{ZT}$ ----105% Typ.  $V_Z^{(1)}$  at  $I_{ZT}$

## ■ Characteristics (Typical)

FIG1: Power Temperature Derating Curve

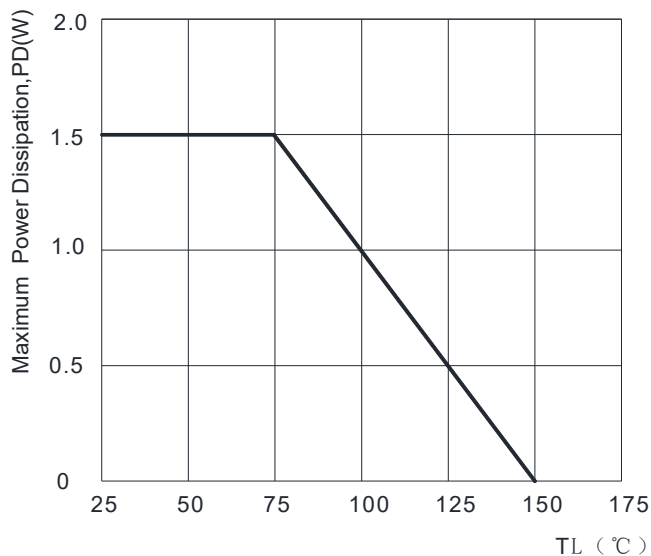
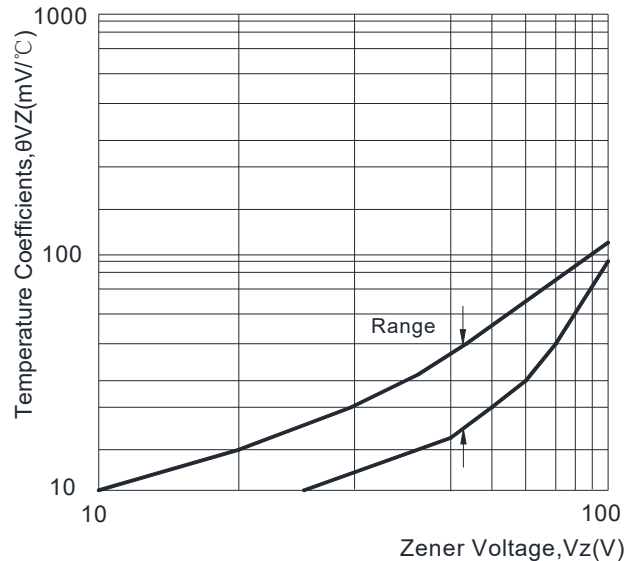


FIG2: Temperature Coefficients v.s. Zener Voltage





# SMA59XXA SERIES

FIG3: Typical Thermal Resistance v.s. Lead Length

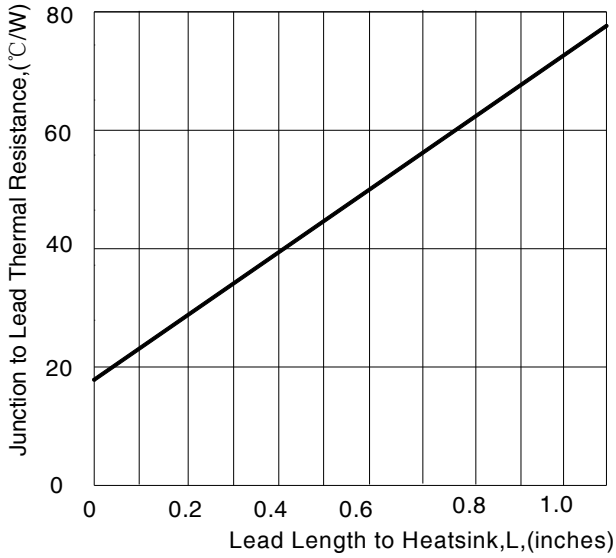


FIG4: Maximum Surge Power

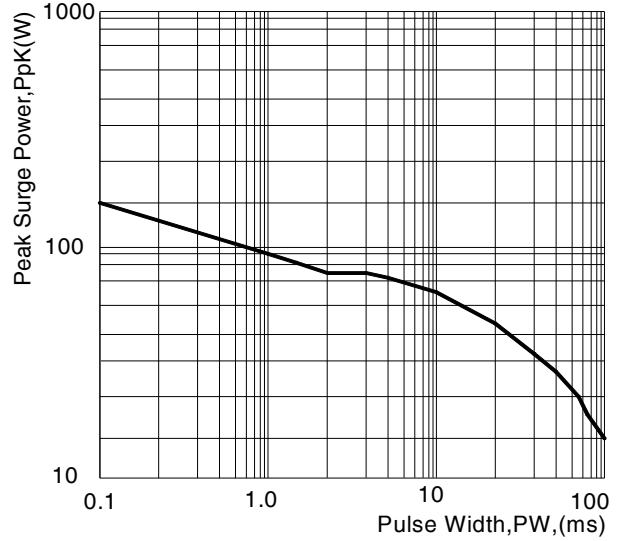
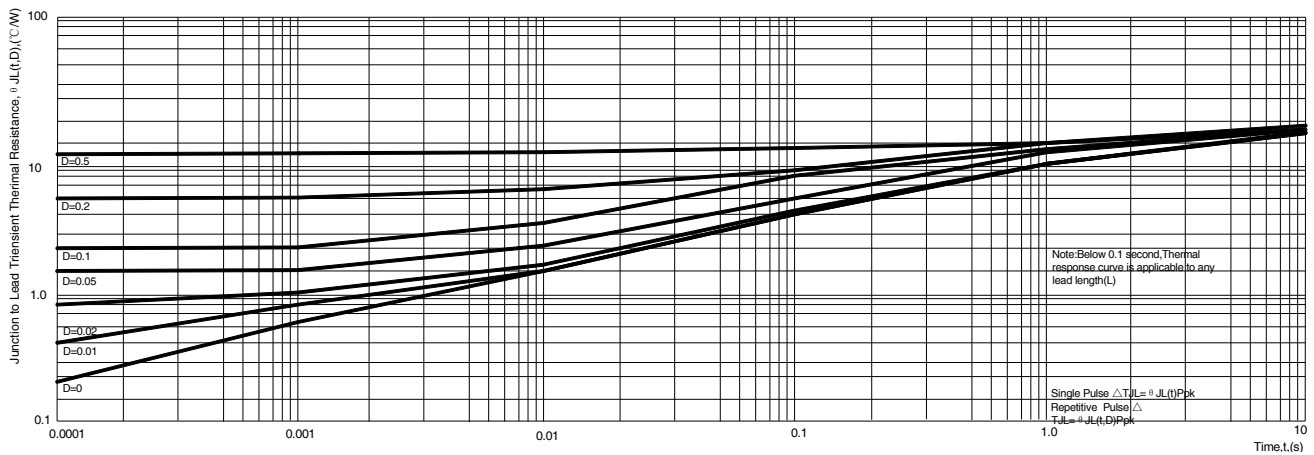


FIG5: Typical Thermal Response L, Lead Length=3/8inch



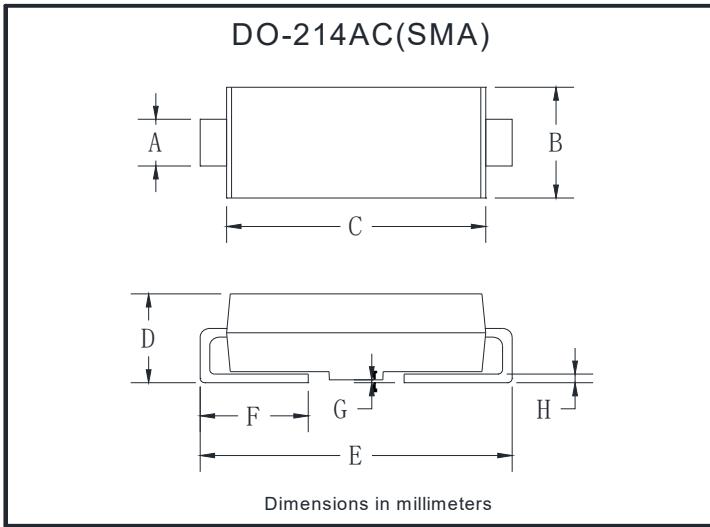
## Ordering Information (Example)

PREFERRED P/N	PACKAGE CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
SMA59XXA SERIES	F1	Approximate 0.059	5000	10000	80000	13" reel
SMA59XXA SERIES	F2	Approximate 0.059	7500	15000	120000	13" reel
SMA59XXA SERIES	F3	Approximate 0.059	7500	15000	60000	13" reel
SMA59XXA SERIES	F4	Approximate 0.059	1800	7200	57600	7" reel
SMA59XXA SERIES	F5	Approximate 0.059	2000	8000	64000	7" reel
SMA59XXA SERIES	F6	Approximate 0.059	5000	10000	100000	13" reel



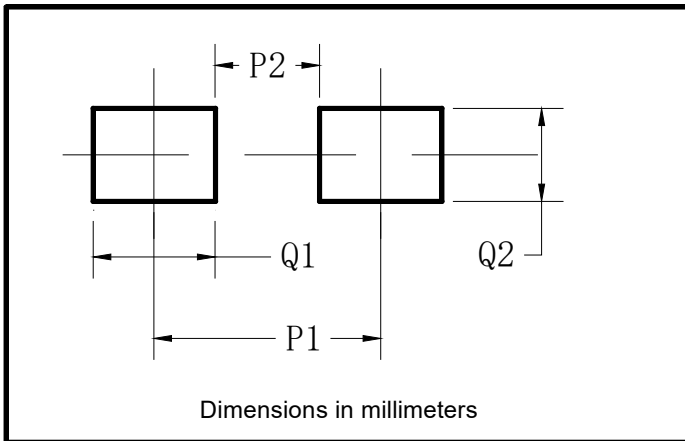
# SMA59XXA SERIES

## ■ Outline Dimensions



DO-214AC(SMA)		
Dim	Min	Max
A	1.25	1.58
B	2.40	2.83
C	4.25	4.75
D	1.90	2.30
E	4.93	5.28
F	0.76	1.41
G	0.08	0.20
H	0.15	0.31

## ■ Suggested Pad Layout



DO-214AC(SMA)	
Dim	Millimeters
P1	4.00
P2	1.50
Q1	2.50
Q2	1.70



## SMA59XXA SERIES

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