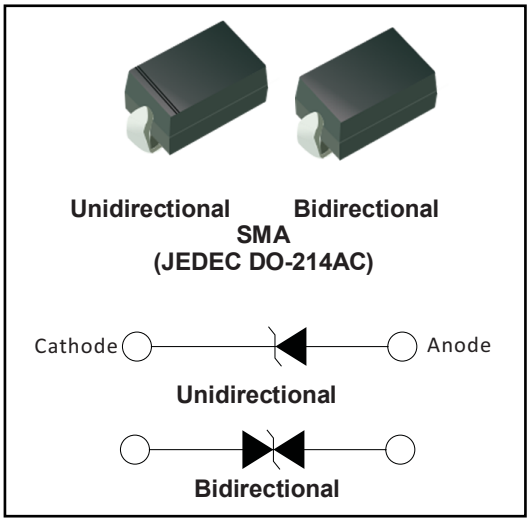
SMA04J

Automotive 400W

Features

- For surface mounted applications
- Low-profile package
- Ideal for automated placement
- Available in Unidirectional and Bidirectional
- 400W peak pulse power capability with a 10/1000 μs waveform
- Low incremental surge resistance, excellent clamping capability
- Very fast response time
- High temperature soldering guaranteed: 260 °C/10 s at terminals
- Meest MSL level 1
- AEC-Q101



Typical Applications

Use in sensitive electronics protection against voltage transients induced by inductive load switching and lighting on ICs, MOSFET, signal lines of sensor units for consumer, computer, industrial, telecommunication.

■**Maximum Ratings** (T_a=25℃ Unless otherwise specified）

PARAMETER	SYMBOL	UNIT	Max
Peak power dissipation, with a 10/1000us waveform (1) (2) (Fig.1)	P_{PPM}	W	400
Peak pulse current, with a 10/1000us waveform (1)	I_{PPM}	A	See Next Table
Power dissipation, on infinite heat sink at TL=75℃	P_D	W	1.0
Peak forward surge current, 8.3 ms single half sine-wave unidirectional only (2)	I_{FSM}	A	40
Operating junction and storage temperature range	T_J,T_{STG}	℃	-55 to +150

Notes:

(1) Non-repetitive current pulse, per Fig. 3 and derated above T_A= 25℃per Fig.2.

(2) Mounted on 0.2 x 0.2" (5.0 x 5.0 mm) copper pads to each terminal

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■**Electrical Characteristics**（Ta=25℃ Unless otherwise specified）

Part Number (Uni)	Part Number (Bi)	Breakdown Voltage V_{BR}@I_T			Maximum Reverse Leakage I_R[6] @ V_{RWM} (μA)	Working Peak Reverse Voltage V_{RWM} (V)	Maximum Reverse Surge Current I_{PP}[5] (A)	Maximum Clamping Voltage Vc @ I_{PP} (V)
		Min(V)	Max (V)	I_T[4](mA)				
SMA04J5.0UC	SMA04J5.0BC	6.40	7.07	10	800	5.0	43.38	9.2
SMA04J6.0UC	SMA04J6.0BC	6.67	7.37	10	800	6.0	38.83	10.3
SMA04J6.5UC	SMA04J6.5BC	7.22	7.98	10	500	6.5	35.71	11.2
SMA04J7.0UC	SMA04J7.0BC	7.78	8.60	10	200	7.0	33.33	12.0
SMA04J7.5UC	SMA04J7.5BC	8.33	9.21	1	100	7.5	31.01	12.9
SMA04J8.0UC	SMA04J8.0BC	8.89	9.83	1	50	8.0	29.41	13.6
SMA04J8.5UC	SMA04J8.5BC	9.44	10.40	1	10	8.5	27.78	14.4
SMA04J9.0UC	SMA04J9.0BC	10.00	11.10	1	5	9.0	25.97	15.4
SMA04J10UC	SMA04J10BC	11.10	12.30	1	5	10.0	23.53	17.0
SMA04J11UC	SMA04J11BC	12.20	13.50	1	5	11.0	21.98	18.2
SMA04J12UC	SMA04J12BC	13.30	14.70	1	1	12.0	20.10	19.9
SMA04J13UC	SMA04J13BC	14.40	15.90	1	1	13.0	18.60	21.5
SMA04J14UC	SMA04J14BC	15.60	17.20	1	1	14.0	17.24	23.2
SMA04J15UC	SMA04J15BC	16.70	18.50	1	1	15.0	16.39	24.4
SMA04J16UC	SMA04J16BC	17.80	19.70	1	1	16.0	15.40	26.0
SMA04J17UC	SMA04J17BC	18.90	20.90	1	1	17.0	14.49	27.6
SMA04J18UC	SMA04J18BC	20.00	22.10	1	1	18.0	13.70	29.2
SMA04J19UC	SMA04J19BC	21.10	23.30	1	1	19.0	13.00	30.8
SMA04J20UC	SMA04J20BC	22.20	24.50	1	1	20.0	12.35	32.4
SMA04J22UC	SMA04J22BC	24.40	26.90	1	1	22.0	11.27	35.5
SMA04J24UC	SMA04J24BC	26.70	29.50	1	1	24.0	10.28	38.9
SMA04J26UC	SMA04J26BC	28.90	31.90	1	1	26.0	9.50	42.1
SMA04J28UC	SMA04J28BC	31.10	34.40	1	1	28.0	8.81	45.4
SMA04J30UC	SMA04J30BC	33.3	36.8	1	1	30.0	8.26	48.4
SMA04J33UC	SMA04J33BC	36.7	40.6	1	1	33.0	7.5	53.3
SMA04J36UC	SMA04J36BC	40	44.2	1	1	36.0	6.88	58.1
SMA04J40UC	SMA04J40BC	44.4	49.1	1	1	40.0	6.2	64.5
SMA04J43UC	SMA04J43BC	47.8	52.8	1	1	43.0	5.76	69.4
SMA04J45UC	SMA04J45BC	50	55.3	1	1	45.0	5.5	72.7
SMA04J48UC	SMA04J48BC	53.3	58.9	1	1	48.0	5.17	77.4
SMA04J51UC	SMA04J51BC	56.7	62.7	1	1	51.0	4.85	82.4
SMA04J54UC	SMA04J54BC	60	66.3	1	1	54.0	4.59	87.1

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Part Number (Uni)	Part Number (Bi)	Breakdown Voltage V_{BR}@I_T			Maximum Reverse Leakage I_R[6] @ V_{RWM} (μA)	Working Peak Reverse Voltage V_{RWM} (V)	Maximum Reverse Surge Current I_{PP}[5] (A)	Maximum Clamping Voltage Vc @ I_{PP} (V)
		Min(V)	Max (V)	I_T[4](mA)				
SMA04J58UC	SMA04J58BC	64.4	71.2	1	1	58.0	4.27	93.6
SMA04J60UC	SMA04J60BC	66.7	73.7	1	1	60.0	4.13	96.8
SMA04J64UC	SMA04J64BC	71.1	78.6	1	1	64.0	3.88	103
SMA04J70UC	SMA04J70BC	77.8	86	1	1	70.0	3.54	113
SMA04J75UC	SMA04J75BC	83.3	92.1	1	1	75.0	3.31	121
SMA04J78UC	SMA04J78BC	86.7	95.8	1	1	78.0	3.17	126
SMA04J80UC	SMA04J80BC	88.8	97.6	1	1	80.0	3.09	129
SMA04J85UC	SMA04J85BC	94.4	104	1	1	85.0	2.92	137
SMA04J90UC	SMA04J90BC	100	111	1	1	90.0	2.74	146
SMA04J100UC	SMA04J100BC	111	123	1	1	100.0	2.47	162
SMA04J110UC	SMA04J110BC	122	135	1	1	110.0	2.26	177
SMA04J120UC	SMA04J120BC	133	147	1	1	120.0	2.07	193
SMA04J130UC	SMA04J130BC	144	159	1	1	130.0	1.91	209
SMA04J140UC	SMA04J140BC	155	171	1	1	140.0	1.76	226.8
SMA04J150UC	SMA04J150BC	167	185	1	1	150.0	1.65	243
SMA04J160UC	SMA04J160BC	178	197	1	1	160.0	1.54	259
SMA04J170UC	SMA04J170BC	189	209	1	1	170.0	1.45	275
SMA04J180UC	SMA04J180BC	200	220	1	1	180.0	1.37	291.6
SMA04J190UC	SMA04J190BC	211	232	1	1	190.0	1.3	307.8
SMA04J200UC	SMA04J200BC	224	247	1	1	200.0	1.23	324
SMA04J220UC	SMA04J220BC	246	272	1	1	220.0	1.12	356
SMA04J250UC	SMA04J250BC	279	309	1	1	250.0	0.99	405
SMA04J300UC	SMA04J300BC	335	371	1	1	300.0	0.82	486
SMA04J350UC	SMA04J350BC	391	432	1	1	350.0	0.71	567
SMA04J400UC	SMA04J400BC	447	494	1	1	400.0	0.62	648
SMA04J440UC	SMA04J440BC	492	543	1	1	440.0	0.56	713

Notes:

(4) Pulse test: t_p≤50ms

(5) Surge current waveform per Fig. 3 and derated per Fig.2.

(6) For bi-directional types having V_{RWM} of 10 V and less, the I_R limit is doubled.

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■ **Characteristics** (Typical)

FIG1:Peak Pulse Power Rating Curve

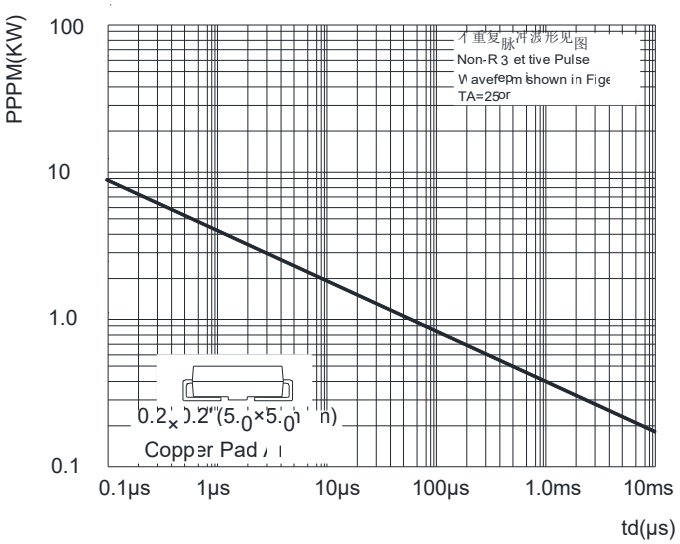


FIG2: Pulse Power or Current vs. Initial Junction Temperature

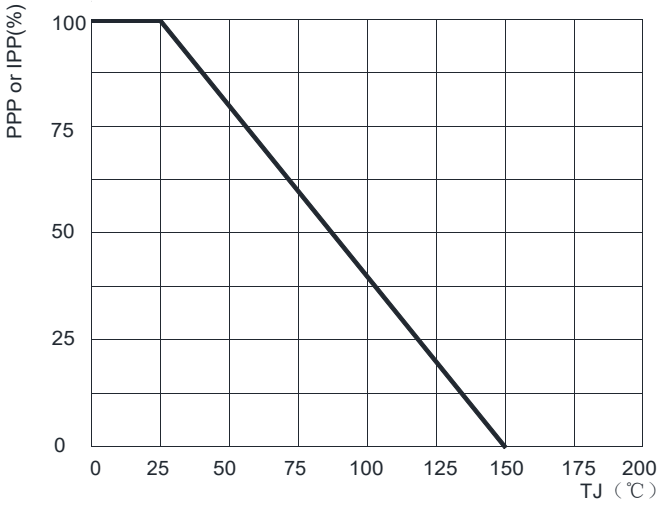


FIG3: Pulse Waveform

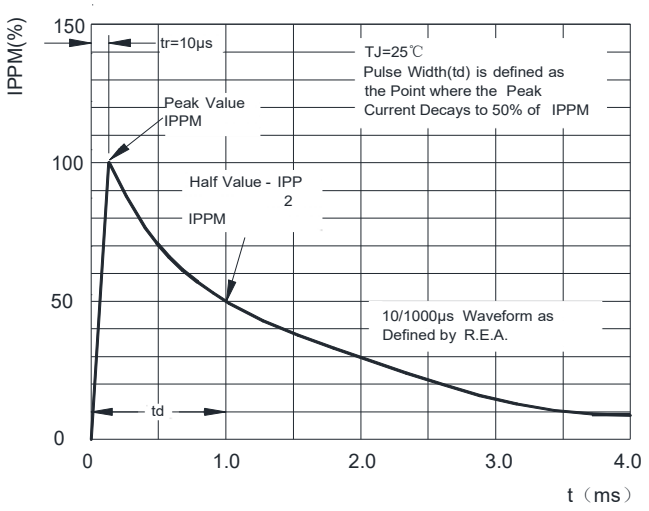


FIG4:Typical Transient Thermal Impedance

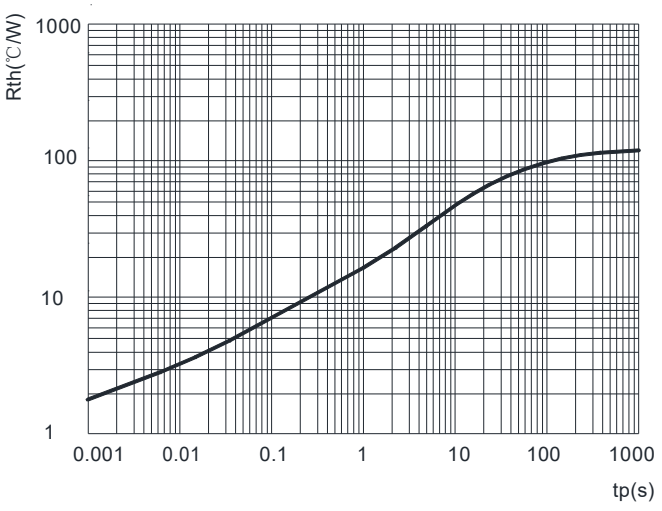
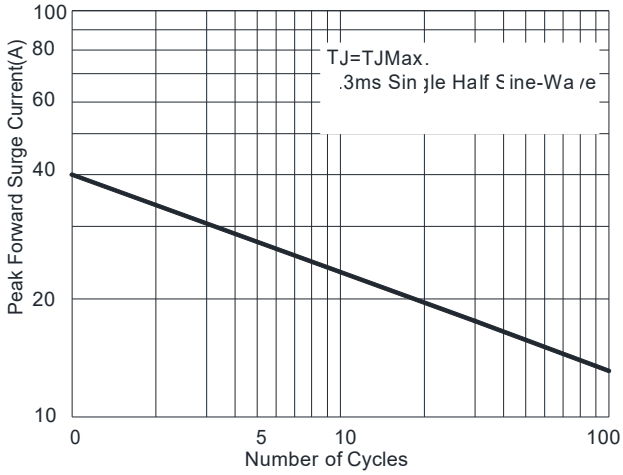
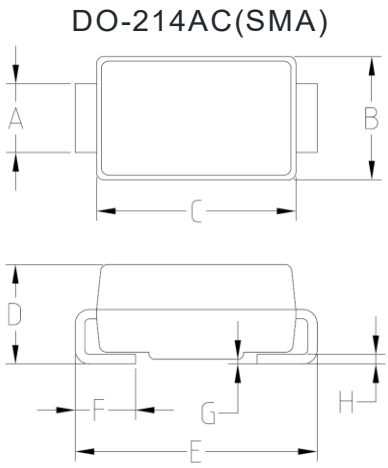


FIG5: Maximum Non-Repetitive Surge Current



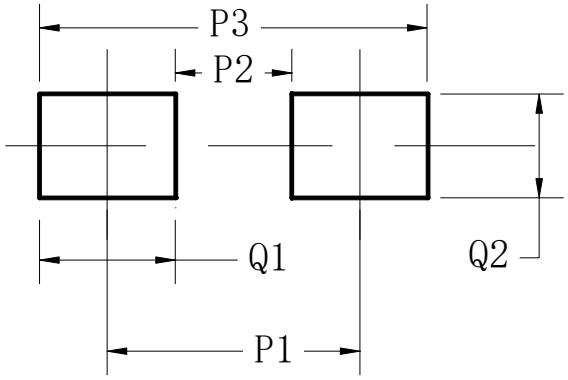
■ Outline Dimensions



Dimensions in millimeters

DO-214AC(SMA)		
Dim	Min	Max
A	1.25	1.58
B	2.40	2.83
C	4.06	4.75
D	1.90	2.30
E	4.93	5.28
F	0.76	1.41
G	0.00	0.20
H	0.15	0.31

■Suggested Pad Layout



Dimensions in millimeters

DO-214AC(SMA)	
Dim	**Millimeters**
P1	4.00
P2	1.50
P3	6.50
Q1	2.50
Q2	1.70