

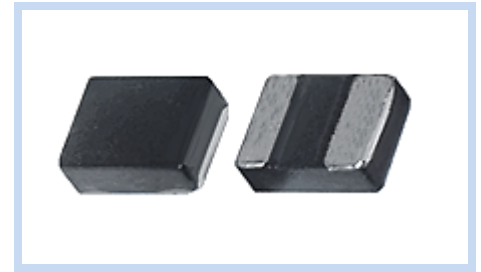
# SMD Power Inductor Molded High Current AEC-Q200

SIM10-18MAE series

MERITEK

## FEATURE

- High Current, Low DCR, High Efficiency
- Low Acoustic Noise and Shielded Construction Design
- High Resolution in EMC Protection
- Application: Automotive Applications
- AEC-Q200 Grade 0 (-55 ~ +150°C)



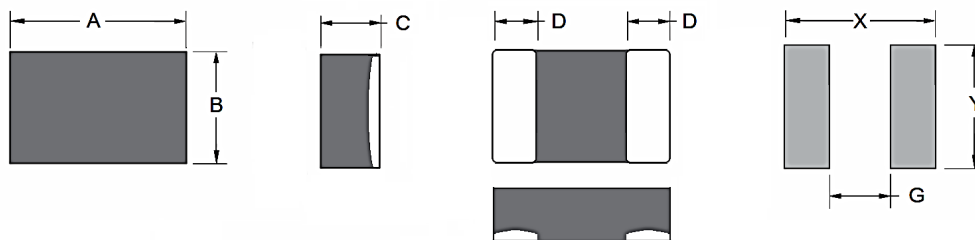
## ELECTRICAL CHARACTERISTICS

Part Number	Inductance ( $\mu\text{H}$ )	Tolerance (%)	I <sub>rms</sub> (A)		I <sub>sat</sub> (A)		DCR (m $\Omega$ )	
			Typ	Max	Typ	Max	Typ	Max
SIM10R33M18MAE	0.33	$\pm 20\%$	8.5	8.0	11.0	10.0	8.0	9.6
SIM10R47M18MAE	0.47	$\pm 20\%$	8.0	7.5	9.0	8.0	9.3	11.2
SIM10R68M18MAE	0.68	$\pm 20\%$	7.0	6.4	8.0	7.0	13.3	16.0
SIM101R0M18MAE	1.00	$\pm 20\%$	6.2	5.8	7.5	6.2	18.3	22.0
SIM101R5M18MAE	1.50	$\pm 20\%$	5.3	4.8	6.0	5.0	25.8	31.0

Notes:

1. Test frequency: Ls:100KHz/1.0V.
2. Heat Rating Current (I<sub>rms</sub>) will cause the temperature rise approximately  $\Delta T$  of 40°C.
3. Saturation Current (I<sub>sat</sub>) will cause L0 to drop approximately 30%.
4. Operating Temperature: -55 ~ +150°C (Including self-temperature rise)

## DIMENSIONS



(Unit: mm)

Size Code	A	B	C	D	X	G	Y
1210 (10)	3.2 $\pm$ 0.3	2.5 $\pm$ 0.3	1.8 $\pm$ 0.2	1.1 $\pm$ 0.3	3.7 Ref	0.7 Ref	2.8 Ref

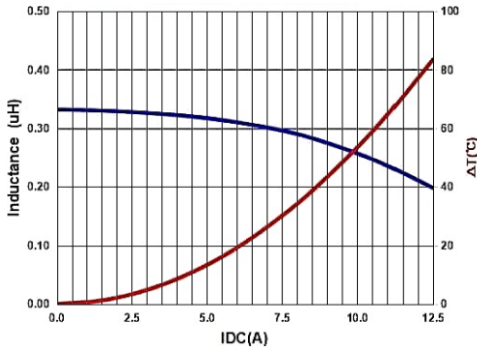
## PART NUMBERING SYSTEM

**SIM** **10** **R33M** **18** **MAE**  
 (1) (2) (3) (4) (5)

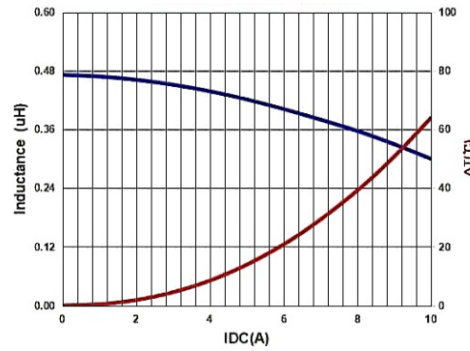
No	item	Code	Description
(1)	Product Code	SIM	SMD Power Inductor Series, High current Molded type
(2)	Size Code	10	1210: 3.2x2.5mm (W x L)
(3)	Inductance	R33M	0.33 $\mu\text{H}$ $\pm 20\%$ (M) R denotes decimal point
(4)	Thickness	18	18: 1.8mm 08: 0.8mm, 10: 1.0mm
(5)	Series Code	MAE	High current molded series, AEC-200 Compliant

**CHARICTERISTIC CURVES – SIM10-18MAE SERIES**

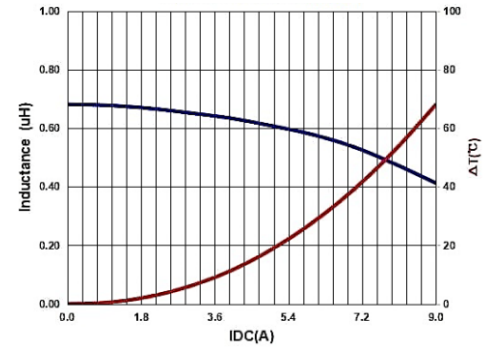
**R33**



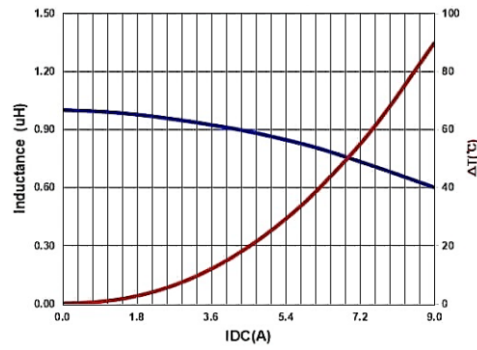
**R47**



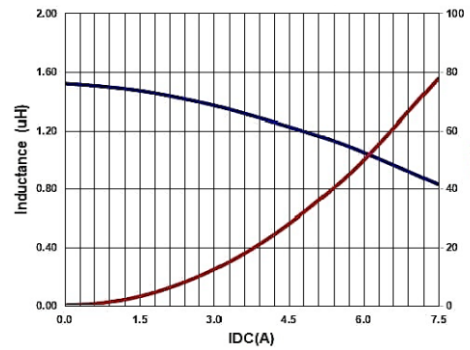
**R68**



**1R0**



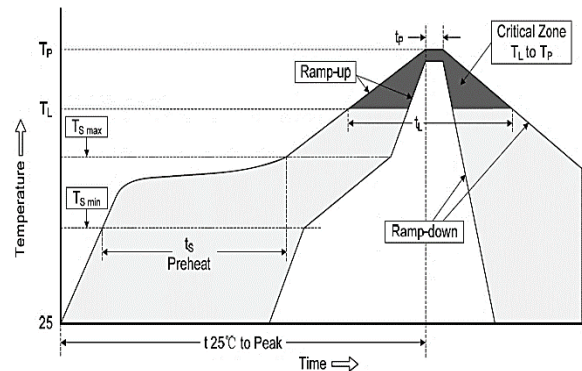
**1R5**



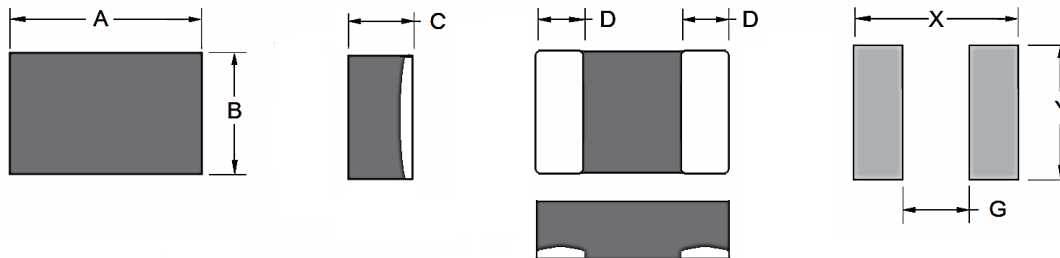
### RECOMMENDED SOLDERING PROFILES

Reflow Condition		
Pre Heat	Temperature Min $T_{s(min)}$	150°C
	Temperature Max $T_{s(max)}$	200°C
	Time (min. to max.) ( $t_s$ )	60 ~120 seconds
Ramp up rate ( $T_L$ to $T_P$ )		3°C/second max
$T_{s(max)}$ to $T_L$ (Ramp-up rate)		3°C/second max
Reflow	Temperature ( $T_L$ )	217°C
	Time (min. to max.) ( $t_L$ )	60 ~150 seconds
Peak Temperature ( $T_P$ )		See table below
$t_p$ within 5°C of Peak Temperature ( $T_P$ )		30 seconds max
Ramp-down Rate		6°C/second max
Time 25°C to Peak Temperature		8 minutes max

Peak Temperature ( $T_P$ )			
Volume	< 350mm <sup>3</sup>	350-2000mm <sup>3</sup>	> 2000mm <sup>3</sup>
Thickness < 1.6mm	260°C	260°C	260°C
Thickness 1.6-2.5mm	260°C	250°C	245°C
Thickness ≥ 2.5mm	250°C	245°C	245°C



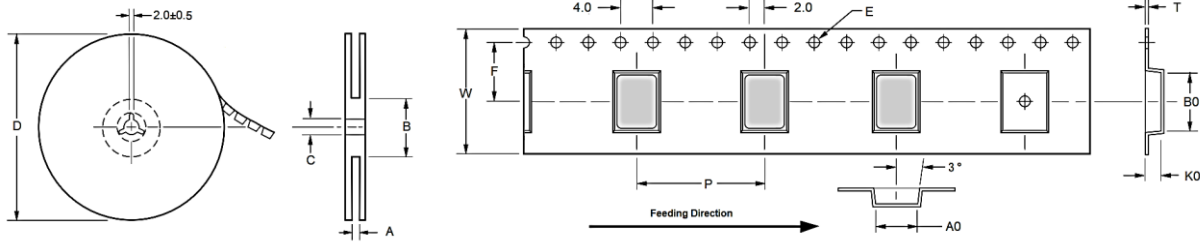
### DIMENSIONS – SIM-MAE SERIES



(Unit: mm)

Size Code	A	B	C	D	X	G	Y
0806	2.0±0.3	1.6±0.3	0.8±0.2	0.7±0.3	2.5 Ref	0.5 Ref	1.9 Ref
1008	2.5±0.3	2.0±0.3	0.8±0.2	0.9±0.3	2.9 Ref	0.5 Ref	2.3 Ref
1008	2.5±0.3	2.0±0.3	1.0±0.2	0.9±0.3	2.9 Ref	0.5 Ref	2.3 Ref
1210	3.2±0.3	2.5±0.3	1.0±0.2	1.1±0.3	3.7 Ref	0.7 Ref	2.8 Ref
1210	3.2±0.3	2.5±0.3	1.8±0.2	1.1±0.3	3.7 Ref	0.7 Ref	2.8 Ref

### PACKAGING DIMENSION



(Unit: mm)

Size Code	Reel Dimension (mm)				Tape Dimensions (mm)								Qty
	A ±1.0	B ±0.5	C ±0.5	D	W ±0.1	F ±0.01	P ±0.1	E ±0.1	A0 ±0.10	B0 ±0.1	K0 ±0.10	T ±0.05	7" Reel
0806	8.4	50	13.0	178.0	8.00	3.5	4.0	1.50	2.00	2.50	1.20	0.23	2000
1008	8.4	50	13.0	178.0	8.00	3.5	4.0	1.50	2.45	2.90	1.35	0.24	2000
1008	8.4	50	13.0	178.0	8.00	3.5	4.0	1.50	2.45	2.90	1.35	0.24	2000
1210	8.4	50	13.0	178.0	8.00	3.5	4.0	1.50	2.90	3.60	1.40	0.22	2000
1210	8.4	50	13.0	178.0	8.00	3.5	4.0	1.50	2.90	3.60	2.20	0.22	2000

\*Specifications subject to change without notice.