



## VCO (Voltage Controlled Oscillators) in SMD

### VCOA Series

Part #	Frequency (MHz)	Supply Voltage	Control Voltage	Output Level (dBm)	Current (mA)	C/N (dBc)	Operating Temperature	Harmonics
VCOA-095A-355M0	355±95	2.7 ~ 3.0	0.5 - 2.5	≥ -3.0	≤ 6.0	110 (25KHz)	-25 to 70°C	≥ -10
VCOA-075A-815M0	815±75	2.7 ~ 5.0	0.5 - 2.5	≥ -3.0	≤ 9.0	110 (25KHz)	-25 to 70°C	≥ -10
VCOA-040A-950M0	950±40	2.7 ~ 5.0	0.5 - 2.5	≥ -3.0	≤ 9.0	110 (30KHz)	-25 to 70°C	≥ -10
VCOA-013A-967M0	967±13	3.35±0.15	0.7 - 2.7	≥ -3.0	≤ 6.4	110 (30KHz)	-25 to 70°C	≥ -10
VCOA-050A-1G150	1150±50	2.7 ~ 5.0	0.5 - 2.5	≥ -3.0	≤ 9.0	108 (30KHz)	-25 to 70°C	≥ -10
VCOA-015A-1G635	1635±15	3.0±0.15	0.5 - 2.5	≥ -3.0	≤ 8.5	111 (100KHz)	-25 to 70°C	≥ -10
VCOA-150A-1G650	1650±150	2.7 ~ 5.0	0.5 - 2.5	≥ -5.0	≤ 11.0	98 (10KHz)	-25 to 70°C	≥ -10
VCOA-030A-1G750	1750±30	3.0±0.15	0.5 - 2.5	≥ -3.0	≤ 8.5	111 (100KHz)	-25 to 70°C	≥ -10
VCOA-100A-2G000	2000±100	3.0 ~ 5.0	0.5 - 2.5	≥ -5.0	≤ 11.0	90 (10KHz)	-25 to 70°C	≥ -10
VCOA-030A-2G108	2108±30.5	3.0±0.15	0.5 - 2.5	≥ -2.0	≤ 8.5	112 (60KHz)	-25 to 70°C	≥ -15
VCOA-100A-2G300	2300±100	3.0 ~ 5.0	0.5 - 2.5	≥ -5.0	≤ 12.0	90 (10KHz)	-25 to 70°C	≥ -10
VCOA-050A-2G450	2450±50	3.0±0.15	0.4 - 2.4	-1.0±4.0	≤ 12.0	75 (10KHz)	-25 to 70°C	≥ -10

### VCOB Series

Part #	Frequency (MHz)	Supply Voltage	Control Voltage	Output Level (dBm)	Current (mA)	C/N (dBc)	Operating Temperature	Harmonics
VCOB-013A-967M0	967±13	3.0±0.15	0.7 - 2.7	≥ -3.0	≤ 6.4	110 (10KHz)	-25 to 70°C	≥ -15
VCOB-015A-1G635	1635±15	3.0±0.15	0.5 - 2.5	≥ -3.0	≤ 8.8	111 (100KHz)	-25 to 70°C	≥ -15
VCOB-035A-1G207	1207±35	2.8±0.10	0.4 - 2.3	≥ -2±3	≤ 8.0	117 (400KHz)	-25 to 70°C	≥ -10
VCOB-030A-1G750	1750±30	3.0±0.15	0.5 - 2.5	≥ -3.0	≤ 8.8	111 (100KHz)	-25 to 70°C	≥ -15

### VCOC Series

Part #	Frequency (MHz)	Supply Voltage	Control Voltage	Output Level (dBm)	Current (mA)	C/N (dBc)	Operating Temperature	Harmonics
VCOC-013A-967M0	967±13	2.7±0.10	0.7 - 2.7	≥ -3.0	≤ 6.4	110 (10KHz)	-25 to 70°C	≥ -15

## VCOD Series

Part #	Frequency (MHz)	Supply Voltage	Control Voltage	Output Level (dBm)	Current (mA)	C/N (dBc)	Operating Temperature
VCOD-013A-967M0	967±13	2.7±0.10	0.7 - 2.7	≥ -3.0	≤ 6.4	110 (10KHz)	-25 to 70°C
VCOD-015A-1G635	1635±15	3.0±0.15	0.5 - 2.5	≥ -3.0	≤ 8.8	111 (100KHz)	-25 to 70°C
VCOD-030A-1G750	1750±30	3.0±0.15	0.5 - 2.5	≥ -3.0	≤ 8.8	111 (100KHz)	-25 to 70°C
VCOD-200A-2G200	2200±200	2.7 - 3.0	0.5 - 2.5	≥ -5.0	≤ 10.0		-25 to 70°C

## VCOE Series

Part #	Frequency (MHz)	Supply Voltage	Control Voltage	Output Level (dBm)	Current (mA)	C/N (dBc)	Operating Temperature	Harmonics
VCOE-018A-897M0	897±18	2.8±0.1	0.4 - 2.2	≥ 5.0	≤ 35.0	120 (100KHz)	-25 to 70°C	≥ -15
VCOE-038A-1G747	1747±38	2.8±0.1	0.4 - 2.2	≥ 6.0	≤ 35.0	110 (100KHz)	-25 to 70°C	≥ -15

## VCOF Series

Part #	Frequency (MHz)	Supply Voltage	Control Voltage	Output Level (dBm)	Current (mA)	C/N (dBc)	Operating Temperature	Harmonics
VCOF-013A-967M0	967±13	3.0±0.15	0.5 - 2.5	≥ -3.0	≤ 6.5	100 (10KHz)	-25 to 70°C	≥ -10
VCOF-030A-1G750	1750±30	3.0±0.15	0.5 - 2.5	≥ -3.0	≤ 9.0	90 (10KHz)	-25 to 70°C	≥ -15
VCOF-035A-1G167	1167±35	3.0±0.15	0.5 - 2.5	≥ -2±3	≤ 8.0	95 (10KHz)	-25 to 70°C	≥ -10
VCOF-035A-1G625	1625±35	3.0±0.15	0.5 - 2.5	≥ -2±3	≤ 9.0	92 (10KHz)	-25 to 70°C	> -15
VCOF-039A-1G217	1217±39	2.8±0.10	0.5 - 2.2	≥ ±2	≤ 10.0	110 (100KHz)	-25 to 70°C	> -10
VCOF-049A-1G570	1570±49	2.8±0.10	0.5 - 2.2	≥ ±2	≤ 10.0	110 (100KHz)	-25 to 70°C	≥ -10

## VCOG Series

Part #	Frequency (MHz)	Supply Voltage	Control Voltage	Output Level (dBm)	Current (mA)	Operating Temperature	Harmonics
VCOG-013A-967M0	967±13	2.7 - 3.0	0.7 - 2.7	≥ -3.0	≤ 6.4	-25 to 70°C	≥ -15
VCOG-015A-1G635	1635±15	3.0±0.15	0.5 - 2.5	≥ -3.0	≤ 8.8	-25 to 70°C	> -10
VCOG-030A-1G750	1750±30	3.0±0.15	0.5 - 2.5	≥ -3.0	≤ 8.8	-25 to 70°C	≥ -10

## VCOH Series

Part #	Frequency (MHz)	Supply Voltage	Control Voltage	Output Level (dBm)	Current (mA)	C/N (dBc)	Operating Temperature	Harmonics
VCOH-035A-175M0	175±35	2.7 - 3.0	0.5 - 2.5	≥ -3.0	≤ 6.0	110 (25KHz)	-25 to 70°C	≥ -10
VCOH-013A-967M0	967±13	3.0±0.15	0.5 - 2.5	≥ -3.0	≤ 6.5		-25 to 70°C	> -10
VCOH-030A-1G750	1750±30	3.0±0.15	0.5 - 2.5	≥ -3.0	≤ 9.0		-25 to 70°C	≥ -15

## VCOI Series

Part #	Frequency (MHz)	Supply Voltage	Control Voltage	Output Level (dBm)	Current (mA)	C/N (dBc)	Operating Temperature	Harmonics
VCOI-015A-622M0	622±15	3	0 - 3.0	≥ 2.0	≤ 40	105 (10KHz)	-40 to 85°C	≥ -10

## VCOJ Series

Part #	Frequency (MHz)	Supply Voltage	Control Voltage	Output Level (dBm)	Tuning Sensitivity	C/N (dBc)	Operating Temperature	S/N (dB min.)
VCOJ-010A-400M0	400±10	5.0±5%	1.0 - 4.0	≥ -4.0	4 MHz/V	110 (25KHz)	-30 to 85°C	52
VCOJ-010A-550M0	550±10	5.0±5%	1.0 - 4.0	≥ -4.0	4 MHz/V	110 (25KHz)	-30 to 85°C	52
VCOJ-080A-1G075	1075±80	5.0±5%	0.5 - 4.5	≥ -4.0	20 MHz/V	110 (25KHz)	-30 to 85°C	52
VCOJ-085A-1G275	1275±85	5.0±5%	0.5 - 4.5	≥ -4.0	22 MHz/V	110 (25KHz)	-30 to 85°C	52
VCOJ-085A-1G735	1735±85	5.0±5%	0.5 - 4.5	≥ -4.0	22 MHz/V	110 (25KHz)	-30 to 85°C	52
VCOJ-020A-860M0	860±20	5.0±5%	0.5 - 4.5	≥ -4.0	8 MHz/V	110 (25KHz)	-30 to 85°C	52
VCOJ-030A-1G760	1760±30	5.0±5%	0.5 - 4.5	≥ 0	8 MHz/V	110 (25KHz)	-30 to 85°C	52
VCOJ-150A-1G950	1950±150	5.0±5%	0.5 - 4.5	≥ 0	25 MHz/V	110 (25KHz)	-30 to 85°C	52

## VCOK Series

Part #	Frequency (MHz)	Supply Voltage	Control Voltage	Output Level (dBm)	Tuning Sensitivity	C/N (dBc)	Operating Temperature	S/N (dB Min)
VCOK-005A-368M0	368±5	5.0±5%	1.0 - 4.0	≥ 0	9±2 MHz/V	110 (25KHz)	-30 to 85°C	52
VCOK-004A-436M0	436±4	5.0±5%	1.0 - 4.0	≥ 2.0	4±2 MHz/V	109 (25KHz)	-30 to 85°C	50
VCOK-010A-746M0	746±10	5.0±5%	1.0 - 4.0	≥ 0	9±2 MHz/V	110 (25KHz)	-30 to 85°C	52
VCOK-005A-980M0	980±5	3.0±5%	1.5 - 2.5	≥ 0	7±2 MHz/V	110 (25KHz)	-30 to 85°C	52
VCOK-015A-1G160	1160±15	5.0±5%	1.0 - 4.0	≥ 0	13±2 MHz/V	110 (25KHz)	-30 to 85°C	52
VCOK-003A-420M0	420±3	5.0±5%	1.0 - 4.0	≥ -2.0	2±1 MHz/V	110 (25KHz)	-30 to 85°C	50
VCOK-013A-836M5	836.5±13	3.5±5%	1.0 - 3.0	≥ -4.0	15±2 MHz/V	110 (25KHz)	-30 to 85°C	52
VCOK-013A-964M5	964.5±13	3.5±5%	1.0 - 3.0	≥ -4.0	15±2 MHz/V	110 (25KHz)	-30 to 85°C	52

# VCOL Series

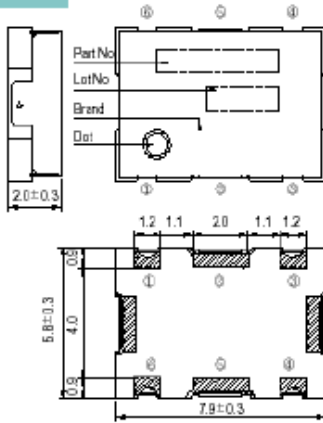
Part #	Frequency (MHz)	Supply Voltage	Control Voltage	Output Level (dBm)	Tuning Sensitivity	C/N (dBc)	Operating Temperature	S/N (dB min)
VCOL-001A-457M5	457.5±1	3.0±5%	0.5 - 2.5	≥ -2.0	2MHz/V min	105 (25KHz)	-30 to 85°C	50
VCOL-001A-479M0	479±1	3.0±5%	0.5 - 2.5	≥ -2.0	2MHz/V min	105 (25KHz)	-30 to 85°C	50
VCOL-001A-446M0	446±1	3.0±5%	0.5 - 2.5	≥ -2.0	2MHz/V min	105 (25KHz)	-30 to 85°C	50
VCOL-001A-490M0	490±1	3.0±5%	0.5 - 2.5	≥ -2.0	2MHz/V min	105 (25KHz)	-30 to 85°C	50
VCOL-009A-362M0	362±9	5.0±5%	1.0 - 4.0	≥ 0	9±2MHz/V	105 (25KHz)	-30 to 85°C	50
VCOL-009A-376M0	376±9	5.0±5%	1.0 - 4.0	≥ 0	9±2MHz/V	108 (25KHz)	-30 to 85°C	50
VCOL-009A-412M0	412±9	5.0±5%	1.0 - 4.0	≥ 0	9±2MHz/V	108 (25KHz)	-30 to 85°C	50
VCOL-005A-439M0	439±5	5.0±5%	1.0 - 4.0	≥ 0	9±2MHz/V	108 (25KHz)	-30 to 85°C	50

# VCOM Series

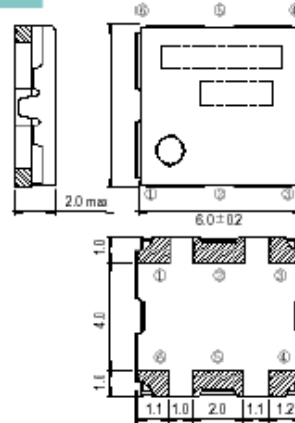
Part #	Frequency (MHz)	Supply Voltage	Control Voltage	Output Level (dBm)	Tuning Sensitivity	C/N (dBc)	Operating Temperature	S/N (dB min)
VCOM-004A-462M0	462±4	3.0±5%	0.8 - 2.5	≥ -3.0	2MHz/V min	100 (25KHz)	-30 to 85°C	50
VCOM-006A-905M0	905±6	3.0±5%	0.8 - 2.5	≥ -3.0	3MHz/V min	100 (25KHz)	-30 to 85°C	50
VCOM-006A-921M0	921±6	3.0±5%	0.8 - 2.5	≥ -3.0	3MHz/V min	100 (25KHz)	-30 to 85°C	50
VCOM-006A-924M0	924±6	3.0±5%	0.8 - 2.5	≥ -3.0	3MHz/V min	100 (25KHz)	-30 to 85°C	50
VCOM-003A-832M0	832±3	3.6±5%	0.7 - 2.7	≥ 0	3MHz/V min	105 (25KHz)	-30 to 85°C	50
VCOM-003A-1G017	1017±3	3.6±5%	0.7 - 2.7	≥ 0	3MHz/V min	105 (25KHz)	-30 to 85°C	50
VCOM-005A-1G657	1657±5	3.6±5%	0.7 - 2.7	≥ 0	5MHz/V min	100 (25KHz)	-30 to 85°C	50
VCOM-008A-1G892	1892±8	3.6±5%	0.7 - 2.7	≥ 0	7MHz/V min	100 (25KHz)	-30 to 85°C	50

# Dimensions

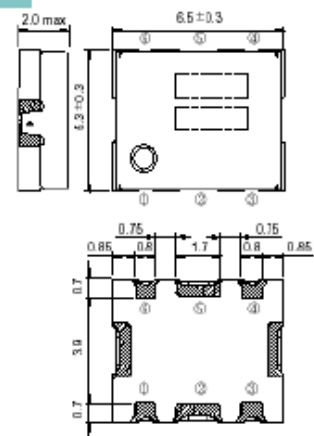
### A Type



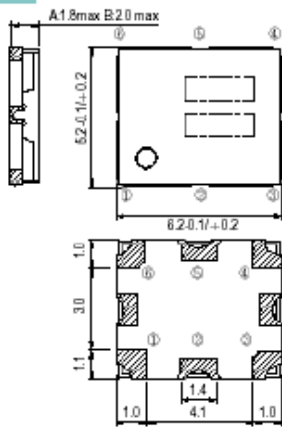
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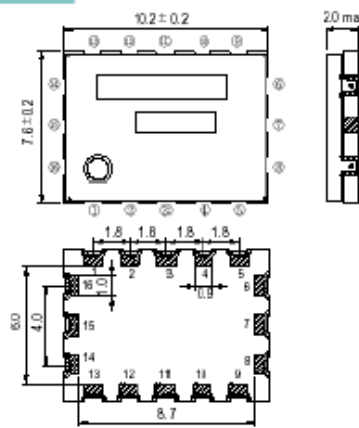
### C Type



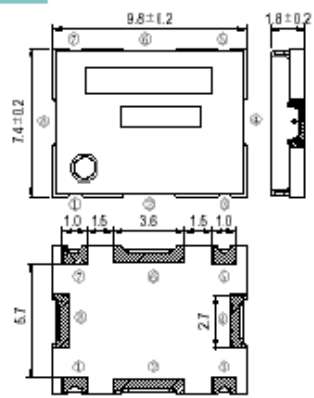
### D Type



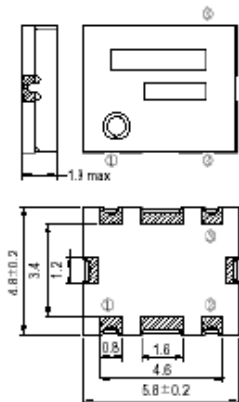
### E Type



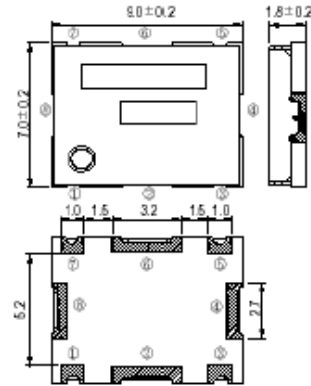
### F Type



### G Type



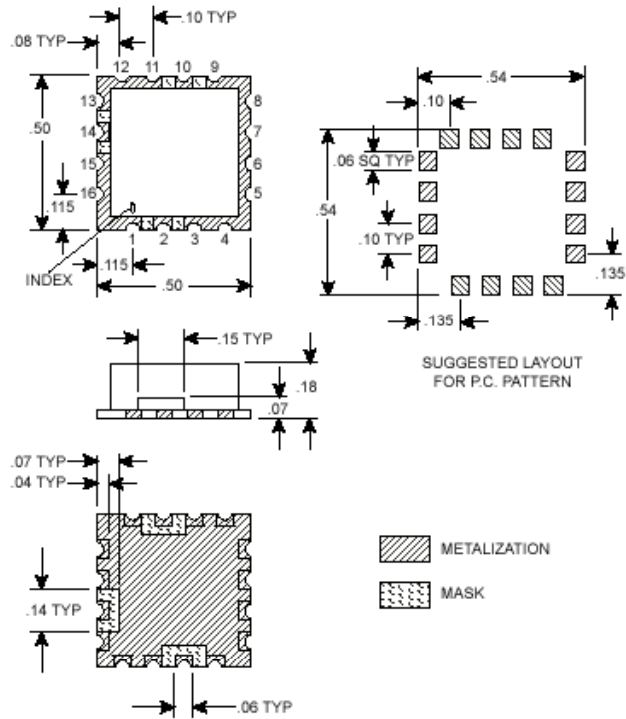
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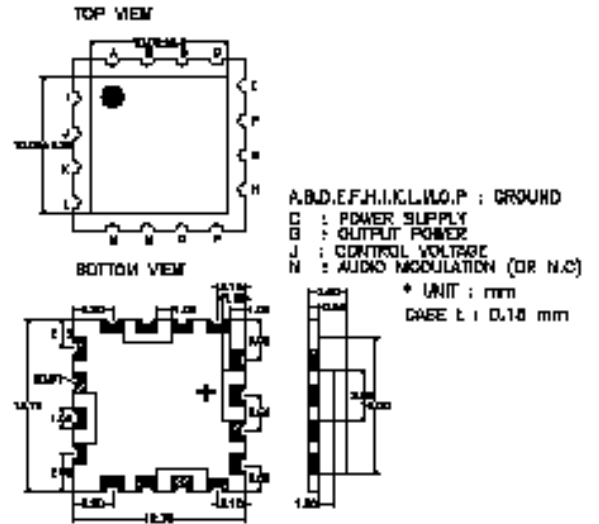
A, B, C, D Type		E Type	
No.	Pad Name	No.	Pad Name
①	Voltage Control	①	DCS Band Switch
②	GND	②	Supply Voltage
③	Supply Voltage	③	Ground
④	Output	④	Control Voltage
⑤	GND	⑤	GSM Band Switch
⑥	GND	⑥	Ground
		⑦	Ground
		⑧	Ground
		⑨	GSM Output
F, H Type			
No.	Pad Name		
①	Vt	①	Ground
②	GND	②	Ground
③	Vcc	③	Ground
④	GND	④	DCS Output
⑤	Output	⑤	Ground
⑥	GND	⑥	Ground
⑦	S/W	⑦	Ground
⑧	GND		
		G Type	
		No.	Pad Name
		①	Vt
		②	Vcc
		③	Output

### I Type

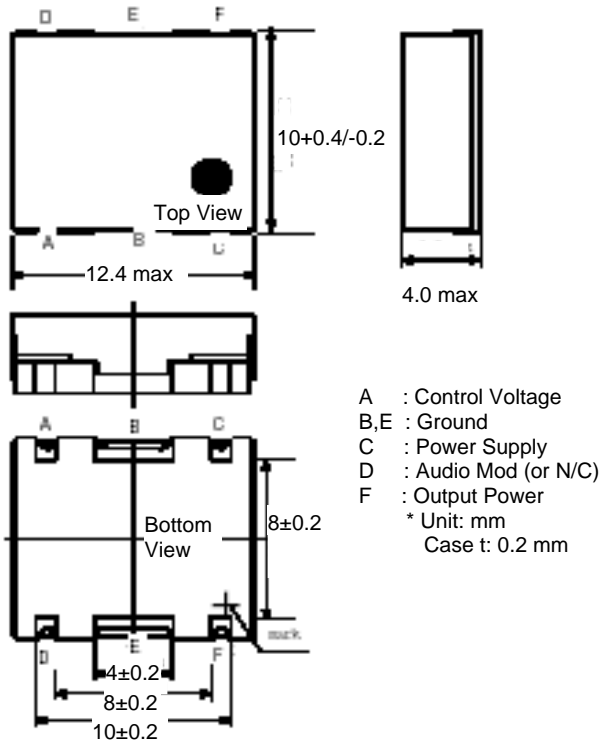
Pinout: RF Out = pin 10, Vcc = pin 14,  
Vtune = pin 2, Ground = All others



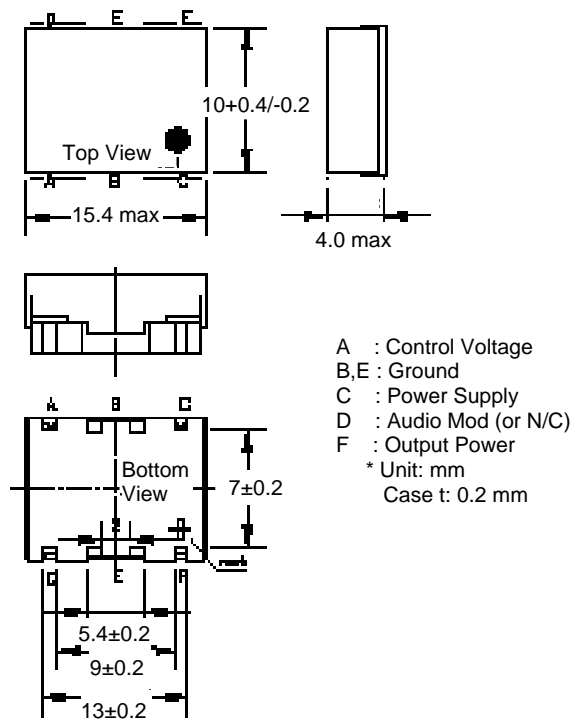
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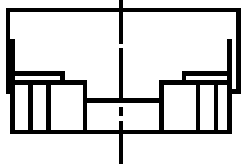
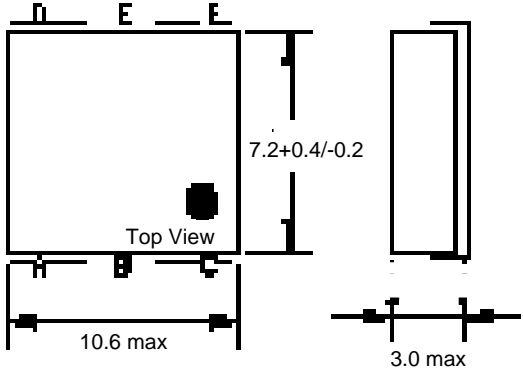
### K Type



### L Type



# M Type



- A : Control Voltage
- B,E : Ground
- C : Power Supply
- D : Audio Mod. (or N/C)
- F : Output Power
- \* Unit: mm
- Case t: 0.2 mm

