FUJITSU MEDIA DEVICE
DATA SHEET

DS04-21714-1E

ASSP for Mobile Telephone

VCO (800 to 2000 MHz)

VC-26 Series

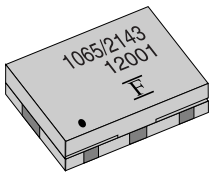
■ DESCRIPTION

With excellent C/N characteristics and low current consumption, this VCO series is suitable for use with AMPS, CDMA and PCS and is ideal to miniaturize, dual-band mode products. The VC-26 series can be used in any frequency band in the 800MHz to 2000MHz range. The device utilizes FUJITSU MEDIA DEVICE's high-frequency design technology, high-density mounting technology, and frequency adjustment technology to provide a high level of reliability in addition to high performance and small size.

■ FEATURES

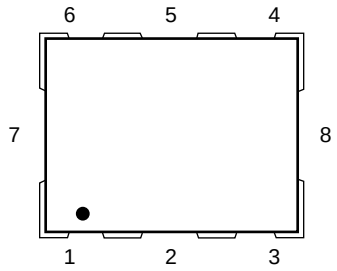
- Superior noise characteristics (C/N, S/N)
- Frequency switching type with an internal switching transistor
- High level of stability in response to ambient temperature and load variations
- FUJITSU MEDIA DEVICE's proprietary fabrication process provides the uniformity of the central frequency distribution
- Small size, light-weight, slim-package : 9.3 × 7.3 × 2.0 mm (Max.)
- SMD-type taping specifications suitable for automatic mounting and reflow soldering

■ PACKAGE



■ PIN ASSIGNMENT

(TOP VIEW)



■ PIN DESCRIPTION

Pin No.	Symbol	Description
1	Vt	Control voltage
2	GND	GND
3	V_{CC}	Power supply voltage
4	OUT	Output
5	GND	GND
6	V_{SW}	Band select
7	GND	GND
8	GND	GND

■ PRODUCT LINEUP (STANDARD MODELS)

System	Center Frequency (MHz)	Band Width (MHz)	Power Supply Voltage (V)	Part Number
AMPS•CDMA/PCS	1065	±13	2.8 ± 0.1	VC-2R8A26-1065/2143
	2143	±30.5		

■ ELECTRICAL CHARACTERISTICS

• Absolute Maximum Ratings

Parameter	Symbol	Rating		Unit
		Min.	Max.	
Input DC voltage	V_{CC}	–0.6	+ 6.0	V
Control voltage	Vt	–0.6	+ 6.0	V
SW voltage	V_{SW}	–0.6	+ 6.0	V
Operating temperature	Ta	–30	+85	°C
Storage temperature	Tstg	–30	+85	°C
Storage humidity	Hstg	5	95	%

WARNING: VCO can be permanently damaged by application of stress (voltage, temperature, humidity, etc.) in excess of absolute maximum ratings. Do not exceed these ratings.

• Band Selection Mode

Band Width	Selection Mode	V_{SW} (V)		Center Frequency (MHz)	Current Consumption (μA) Typ.
		Min.	Max.		
CDMA	Band1	0.0	0.15	1065	–45.0
PCS	Band2	2.65	2.8	2143	0.0

• **Electrical Characteristics**

Band1

(Ta = –30°C to +85°C)

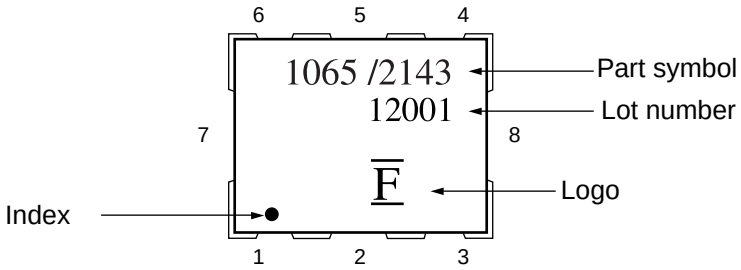
Parameter	Symbol	Conditions	Value			Unit
			Min.	Typ.	Max.	
Current consumption	I_{CC}	V_{CC} = 2.8 V, Vt = 1.425 V	—	—	15.0	mA
SW current	I_{SW}	V_{CC} = 2.8 V, Vt = 1.425 V, V_{SW} = 0 V	—	45.0	100.0	µA
Frequency	fmin	V_{CC} = 2.8 V, Vt = 0.5 V	—	—	1052.0	MHz
Frequency	fmax	V_{CC} = 2.8 V, Vt = 2.35 V	1078.0	—	—	MHz
Control voltage sensitivity	Svt	(fmax – fmin) / 1.85	20.0	—	30.0	MHz/V
Oscillator output	P_O	V_{CC} = 2.8 V, Vt = 1.425 V, Ta = 25°C	—	0.0	—	dBm
		V_{CC} = 2.8 V, Vt = 1.425 V	–4.5	—	3.0	
C/N	C/N	Offset = 60 kHz, BW = 1 Hz, Ta = 25°C	—	—	–119.0	dBc/Hz
		Offset = 60 kHz, BW = 1 Hz	—	—	–117.0	
		Offset = 120 kHz, BW = 1 Hz	—	—	–123.0	
		Offset = 330 kHz, BW = 1 Hz	—	—	–131.0	
		Offset = 660 kHz, BW = 1 Hz	—	—	–137.0	
		Offset = 900 kHz, BW = 1 Hz	—	—	–140.0	
		Offset = 1700 kHz, BW = 1 Hz	—	—	–141.0	
		Offset ≥ 45 MHz, BW = 1 Hz	—	—	–160.0	
Higher harmonics	Hs	V_{CC} = 2.8 V, Vt = 1.425 V, Up to 3rd	—	—	–10.0	dBc
Spurious	Sp	V_{CC} = 2.8 V, Vt = 1.425 V	—	—	–80.0	dBc
Power supply variation	Push	V_{CC} = 2.8 V ± 0.1 V, Vt = 1.425 V	—	—	±1000	kHz
Load variation	Pull	V_{CC} = 2.8 V, Vt = 1.425 V, VSWR = 2, All phase	—	—	±700	kHz
Temperature drift	Td	Ta = +25 (+60/–55) °C	—	—	±3000	kHz

Band2

(Ta = –30°C to +85°C)

Parameter	Symbol	Conditions	Value			Unit
			Min.	Typ.	Max.	
Current consumption	I_{CC}	V_{CC} = 2.8 V, Vt = 1.425 V	—	—	15.0	mA
Frequency	fmin	V_{CC} = 2.8 V, Vt = 0.5 V	—	—	2113.0	MHz
Frequency	fmax	V_{CC} = 2.8 V, Vt = 2.35 V	2174.0	—	—	MHz
Control voltage sensitivity	Svt	(fmax – fmin) / 1.85	40.0	—	60.0	MHz/V
Oscillator output	P_O	V_{CC} = 2.8 V, Vt = 1.425 V, Ta = +25°C	—	0.0	—	dBm
		V_{CC} = 2.8 V, Vt = 1.425 V	–4.5	—	3.0	
C/N	C/N	Offset = 120 kHz, BW = 1 Hz	—	—	–117.0	dBc/Hz
		Offset = 1250 kHz, BW = 1 Hz, Ta = +25°C	—	—	–139.0	
		Offset = 1250 kHz, BW = 1 Hz	—	—	–137.0	
		Offset = 2050 kHz, BW = 1 Hz	—	—	–140.0	
		Offset ≥ 80 MHz, BW = 1 Hz	—	—	–160.0	
Higher harmonics	Hs	V_{CC} = 2.8 V, Vt = 1.425 V, Up to 3rd	—	—	–10.0	dBc
Spurious	Sp	V_{CC} = 2.8 V, Vt = 1.425 V	—	—	–80.0	dBc
Power supply variation	Push	V_{CC} = 2.8 V ± 0.1 V	—	—	±1000	kHz
Load variation	Pull	V_{CC} = 2.8 V, Vt = 1.425 V, VSWR = 2, All phase	—	—	±700	kHz
Temperature drift	Td	Ta = +25 (+60/–55) °C	—	—	±6000	kHz

■ MARKING

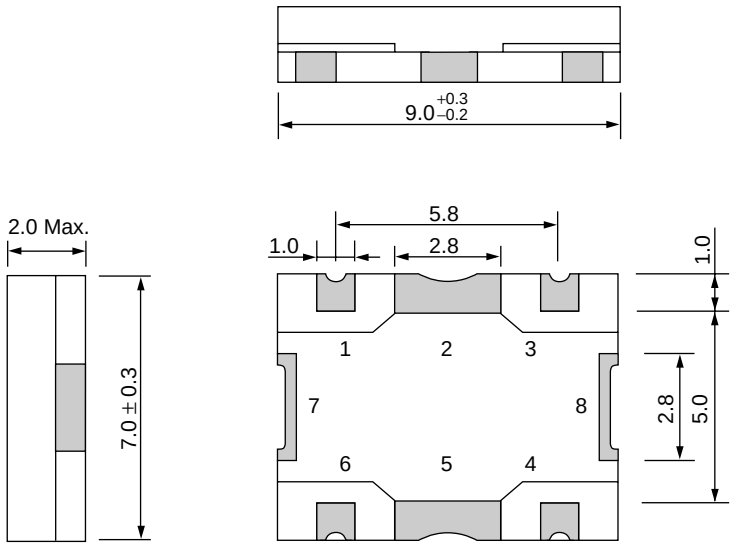


■ PART NUMBER DESIGNATION

VC – 2R8 A 26 – 1065/2143

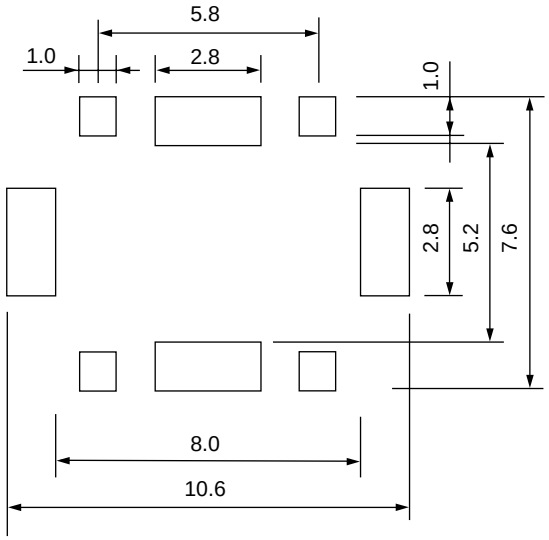
1065/2143	Center Frequency	Band 1 : 1065 MHz Band 2 : 2143 MHz
26	Series Name	: VC-26 Series
A	Outer Sheath Type	: SMD
2R8	Power Supply Voltage	: 2.8 V
VC	Product Category	: VCO

■ PACKAGE DIMENSION



Dimensions in mm

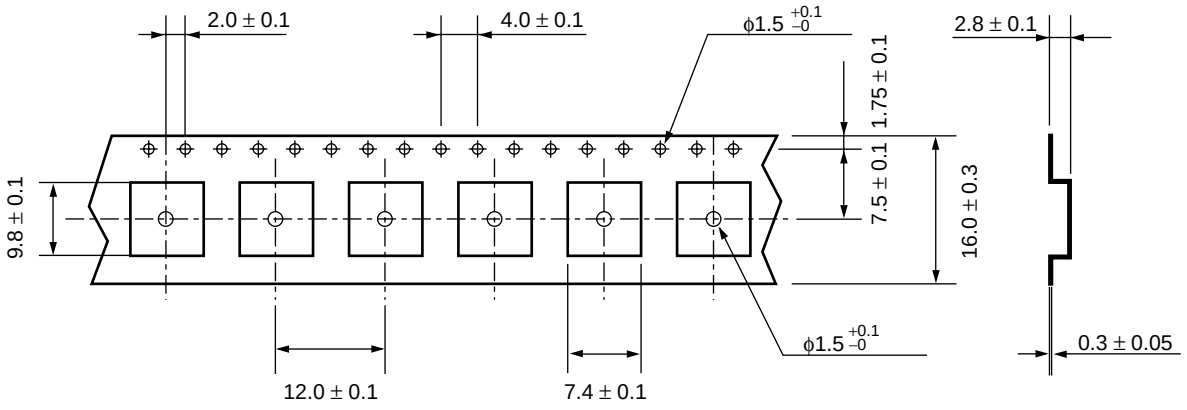
■ RECOMMENDED PATTERN FOR SOLDERING



Dimensions in mm
Dimension tolerance : ± 0.1 mm

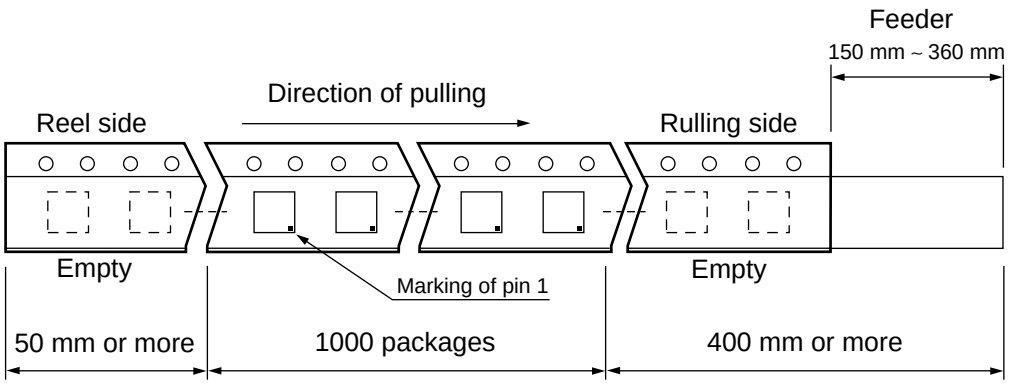
■ TAPING AND PACKAGING

(1) Carrier Tape and Packaging

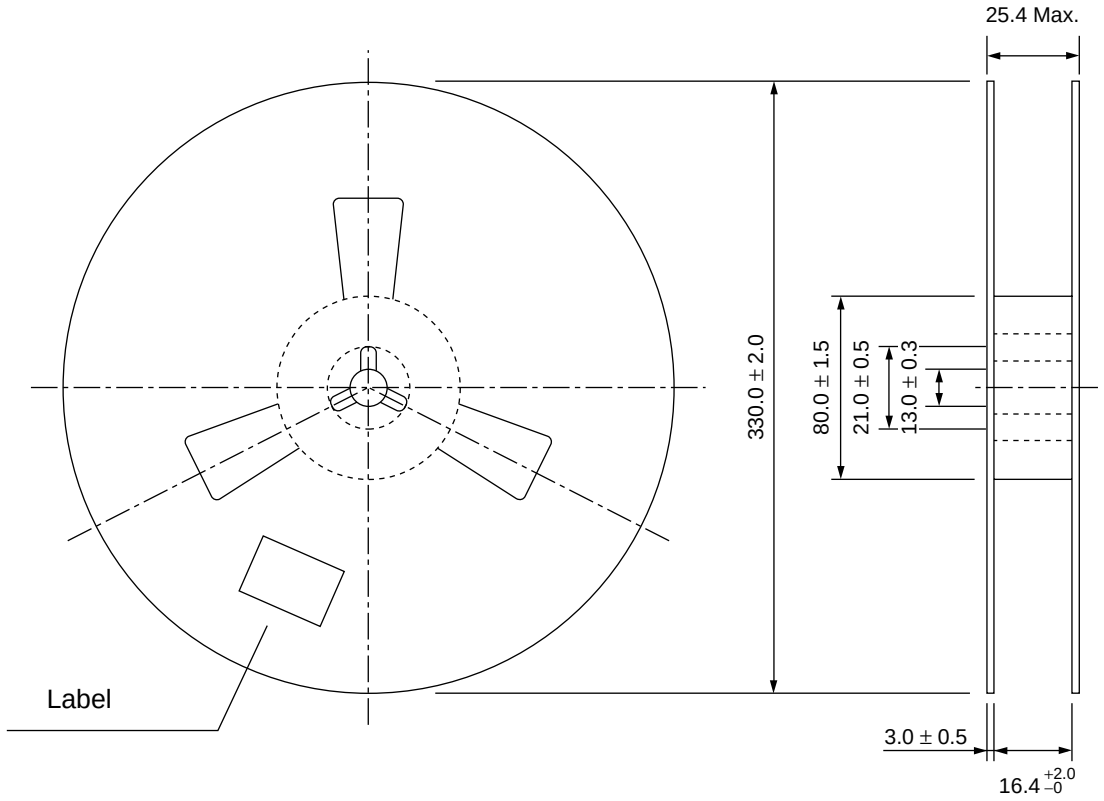


Dimensions in mm

(2) Taping Layout



(3) Reel Shape and Dimensions



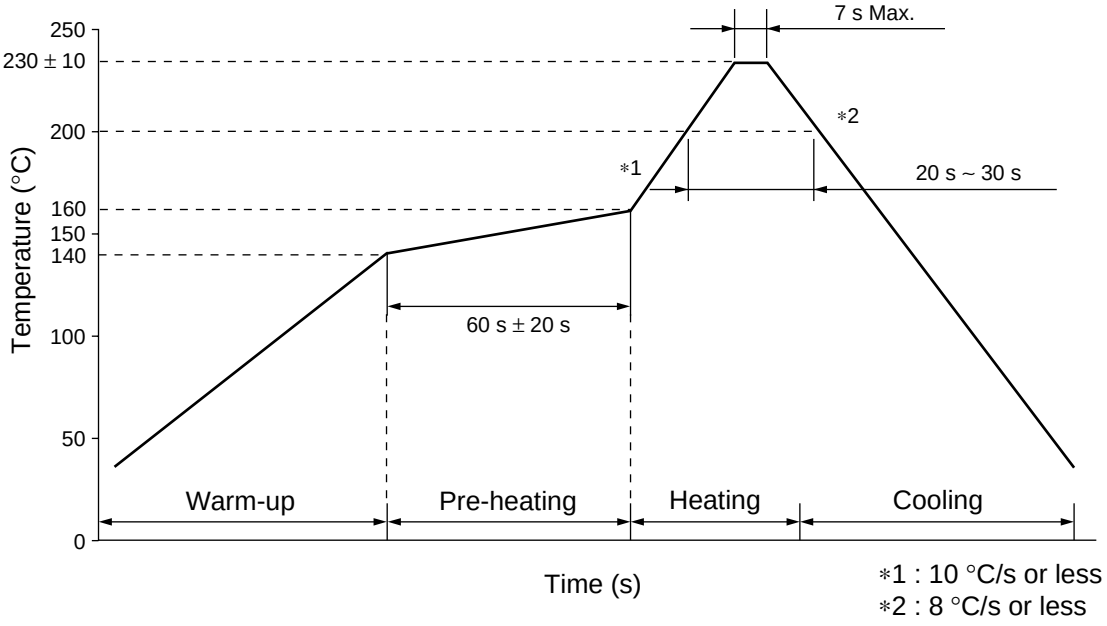
Note : The label specifies the part number, quantity, and lot number.

Volume : 1000 pcs/reel
Type : (L) 340 × (W) 340 × (t) 30 (mm)

Dimensions in mm

■ REFLOW MOUNTING CONDITIONS (RECOMMENDED)

- Perform mounting using the temperature profile shown below. To prevent thermal stress to the VCO, ensure gentle temperature gradients and use preheating whenever possible. (Recommended preheating: 140°C to 160°C for 60 s ± 20 s)
- Always consult FUJITSU MEDIA DEVICE beforehand if mounting more than once.
- Never remove a VCO that has already been mounted and attempt to reuse.
- For mounting, use a general-purpose flux suitable for mounting electronic components.



■ WASHING CONDITIONS

- Washing solution: Use isopropyl alcohol.
- Washing procedure: Immersion or steam cleaning is recommended.
- Washing time: For immersion: Less than 5 minutes at 40°C or less.
  For steam: Less than 2 minutes at 90°C or less is recommended.

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