

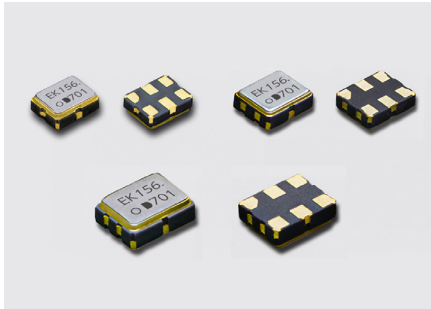


Ark.h.2G



SMD Differential Output Crystal Oscillators (For Automotive) Under Development

DE2016AK/DE2520AK/DE3225AK, DE2016AJ/DE2520AJ/DE3225AJ



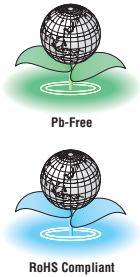
Actual size DE2016A SERIES DE2520A SERIES DE3225A SERIES

Features

- Available frequency: 100MHz, 125MHz, 156.25MHz, 312.5MHz
- Supports a wide operating temperature range with narrow tolerance from -40 to +125°C
- LV-PECL output (DE2016AK/DE2520AK/DE3225AK)
- LVDS output (DE2016AJ/DE2520AJ/DE3225AJ)
- AEC-Q200 compliant (option: equivalent to AEC-Q100)

Applications

- Automotive high-speed communication (domain ECU, zone ECU, Ethernet, PCIe)



[Function Code]

DE****AK A B

A : 3.3V B : $\pm 50 \times 10^{-6}$
C : 2.5V C : $\pm 30 \times 10^{-6}$
D : 1.8V E : $\pm 20 \times 10^{-6}$

When requesting the product, please select the model and function code of your request.

Standard Specification

Item	Type	Symbol	DE2016AK DE2520AK DE3225AK	DE2016AJ DE2520AJ DE3225AJ
Output Specification	—	—	LV-PECL	LVDS
Output Frequency Range	f_0	—	100MHz/125MHz/156.25MHz/312.5MHz	
Supply Voltage	V _{CC}	—	+2.5 $\pm$ 0.125V/+3.3 $\pm$ 0.165V	+1.8 $\pm$ 0.090V/+2.5 $\pm$ 0.125V/+3.3 $\pm$ 0.165V
Frequency Tolerance	f_{tol}	—	$\pm 30 \times 10^{-6}$ max., $\pm 50 \times 10^{-6}$ max. (Option $\pm 20 \times 10^{-6}$ max.)	
Storage Temperature Range	T _{stg}	—	-40 to +125°C	
Operating Temperature Range	T _{use}	—	-40 to +85°C, -40 to +105°C	
Current Consumption	I _{CC}	—	55mA max. (156.25MHz), 65mA max. (312.5MHz)	23mA max. (156.25MHz), 38mA max. (312.5MHz)
Stand-by Current (#1 pin "L" Level)	I _{std}	—	60 μ A max.	
Load Condition	Load-R	—	50 Ω to V _{CC} -2V	100 Ω Output-OutputN
Symmetry	SYM	—	45 to 55% [1/2V _{OPP}]	
0 Level Output Voltage	V _{OL}	—	V _{CC} -1.5V max.	—
1 Level Output Voltage	V _{OH}	—	V _{CC} -1.1V min.	—
Rise and Fall Time	tr, tf	—	0.35ns max. [20 to 80% V _{OPP}]	
Output Voltage	V _{OPP}	—	0.80V min.	0.5V min.
Differential Output Voltage	V _{OD1} , V _{OD2}	—	—	0.25 to 0.45V (Option: 0.30 to 0.60V, 0.40 to 0.80V)
Change to VOD	ΔV_{OD}	—	—	50mV [$\Delta V_{OD} = V_{OD1} - V_{OD2} $]
Offset Voltage	V _{OS}	—	—	0.65 to 0.85V (+1.8V), 1.125 to 1.375V (+2.5V, +3.3V)
Offset VOD	ΔV_{OS}	—	—	50mV
OE Pin 0 Level Input Voltage	V _{IL}	—	V _{CC} $\times$ 0.2max.	
OE Pin 1 Level Input Voltage	V _{IH}	—	V _{CC} $\times$ 0.8min.	
Output Disable Time	t _{PLZ}	—	100ns max.	
Output Enable Time	t _{PZL}	—	500ns max.	
Phase Jitter [f ₀ offset: 12kHz to 20MHz]	tpj	—	35s typ., 80fs max. (156.25MHz/V _{CC} =+2.5V, +3.3V) 27fs typ., 60fs max. (312.5MHz/V _{CC} =+2.5V, +3.3V)	40fs typ., 80fs max. (156.25MHz/V _{CC} =+2.5V, +3.3V) 32fs typ., 60fs max. (312.5MHz/V _{CC} =+2.5V, +3.3V)
Reliability	—	—	AEC-Q100/AEC-Q200	
Packing Unit(1)	—	—	DE2016A SERIES, DE2520A SERIES: 3000pcs./reel (Φ 180), DE3225A SERIES: 2000pcs./reel (Φ 180)	

(1) Moisture prevention packing is unnecessary.

Moisture Sensitivity Level : Level1 (IPC/JEDEC J-STD-033)

Consult our sales representative for other specifications

DE2016A SERIES

[mm]

DE2520A SERIES

[mm]

DE3225A SERIES

[mm]

Dimensions Model Code: DE2016AK, EK, DE2016AJ, EJ Frequency: 100MHz, 125MHz, 156.25MHz, 312.5MHz Pin Connections: #1: OE #2: Do Not Connected #3: GND #4: Output #5: OutputN #6: V_{CC} Function: #1 Input, #4,5 Output condition, Open or "H" Oscillation out, "L" High Z Recommended Land Pattern (Top View)	Dimensions Model Code: DE2520AK, EK, DE2520AJ, EJ Frequency: 100MHz, 125MHz, 156.25MHz, 312.5MHz Pin Connections: #1: OE #2: Do Not Connected #3: GND #4: Output #5: OutputN #6: V_{CC} Function: #1 Input, #4,5 Output condition, Open or "H" Oscillation out, "L" High Z Recommended Land Pattern (Top View)	Dimensions Model Code: DE3225AK, EK, DE3225AJ, EJ Frequency: 100MHz, 125MHz, 156.25MHz, 312.5MHz Pin Connections: #1: OE #2: Do Not Connected #3: GND #4: Output #5: OutputN #6: V_{CC} Function: #1 Input, #4,5 Output condition, Open or "H" Oscillation out, "L" High Z Recommended Land Pattern (Top View)
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