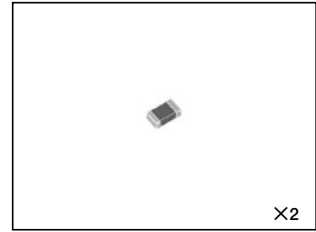


2012(0805)Size chip capacitors : MCH21

- Miniature, high capacitance
- Achieved high capacitance by thin and multi layer technology
- Lead-free plating terminal
- No polarity



Quick Reference

The design and specifications are subject to change without prior notice. Before ordering or using, please check the latest technical specifications. For more detail information regarding temperature characteristic code and packaging style code, please check product destination.

Range of thermal compensation capacitors

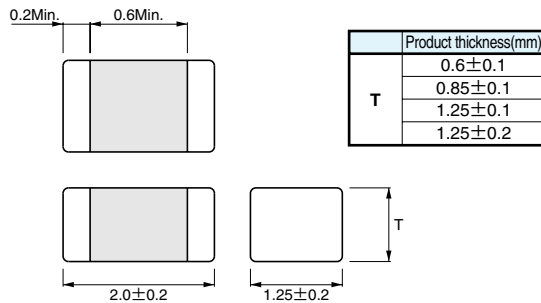
MCH21	Temperature	A,AN(CG) (COG) (CH) Characteristic			Packing style code
	Rated voltage(V)	50V			
	Product thickness(mm)	0.6±0.10	0.85±0.1	1.25±0.1	
	Capacitance(pF)	2,700~3,300	3,900~5,600	6,800~10,000	
Capacitance tolerance		J(±5%)			K, P
Nominal capacitance series		E12			

Range of high dielectric constant capacitors

MCH21	Temperature	CN(R) (B) (X7R) Characteristic					CN (X5R) Characteristic		Packing style code
	Rated voltage(V)	50V		25V	16V	10V	10V	6.3V	
	Product thickness(mm)	0.6±0.1	0.85±0.15	1.25±0.2					
	Capacitance(pF)	1,000~47,000	68,000	10,000	150,000~220,000	330,000~1,000,000	1,500,000~2,200,000	3,300,000~4,700,000	
Capacitance tolerance		K(±10%)						M(±20%)	K, P
Nominal capacitance series		E6							

MCH21	Temperature	FN(F) (Y5V) Characteristic			Packing style code	
	Rated voltage(V)	50V		16V		10V
	Product thickness(mm)	0.6±0.1		1.25±0.2		
	Capacitance(pF)	10,000~100,000		1,000,000~4,700,000		10,000,000
Capacitance tolerance		Z(+80%, -20%)			K, P	
Nominal capacitance series		E3				

External dimensions (Unit : mm)



Code	Product thickness	Packing specification	Reel	Basic ordering unit(pcs.)
K	0.6、0.85mm	Paper tape(width 8mm, pitch 4mm)	φ 180mm (7in.)	4,000
P	1.25mm	Pulastic tape(width 8mm, pitch 4mm)	φ 180mm (7in.)	2,000

Reel(φ 180mm):compatible with EIAJ ET-7200A

Production designation

Part No.

Packing Style

M C H 2 1 3 F N 1 0 5 Z K

Rated voltage	
Code	Voltage
8	6.3V
4	10V
3	16V
2	25V
5	50V

Capacitance-temperature characteristics				Nominal capacitance	Capacitance tolerance	
Code	EIA code	Operating temp. range(°C)	Temp. coefficient or percent change		Code	Tolerance
A,AN	CG(COG)	-55~+125	0±30ppm/°C	3-digit designation according to IEC	J	±5% (11pF or more)
	CH	-55~+125	0±60ppm/°C		K	±10%
CN	R	-55~+125	±15%		M	±20%
	B	-25~+85	±10%		Z	+80%, -20%
	(X5R)	(-55~+85)	(±15%)			
(X7R)	(-55~+125)	(±15%)				
FN	F	-25~+85	+30%, -80%			
	(Y5V)	(-30~+85)	(+22%, -82%)			



■ Product No. list

● Thermal compensation capacitors

Capacitance (pF)	Temperature		A·AN (CG) (COG) (CH) Characteristic
	Rated voltage(V)		25V
	Tolerance	Product thickness(mm)	Product No.
2,700	J (±5%)	0.6±0.1	MCH215A (AN) 272JK
3,300			MCH215A (AN) 332JK
3,900			MCH215A (AN) 392JK
4,700		0.85±0.1	MCH215A (AN) 472JK
5,600			MCH215A (AN) 562JK
6,800			MCH215A (AN) 682JP
8,200		1.25±0.1	MCH215A (AN) 822JP
10,000			MCH215A (AN) 103JP

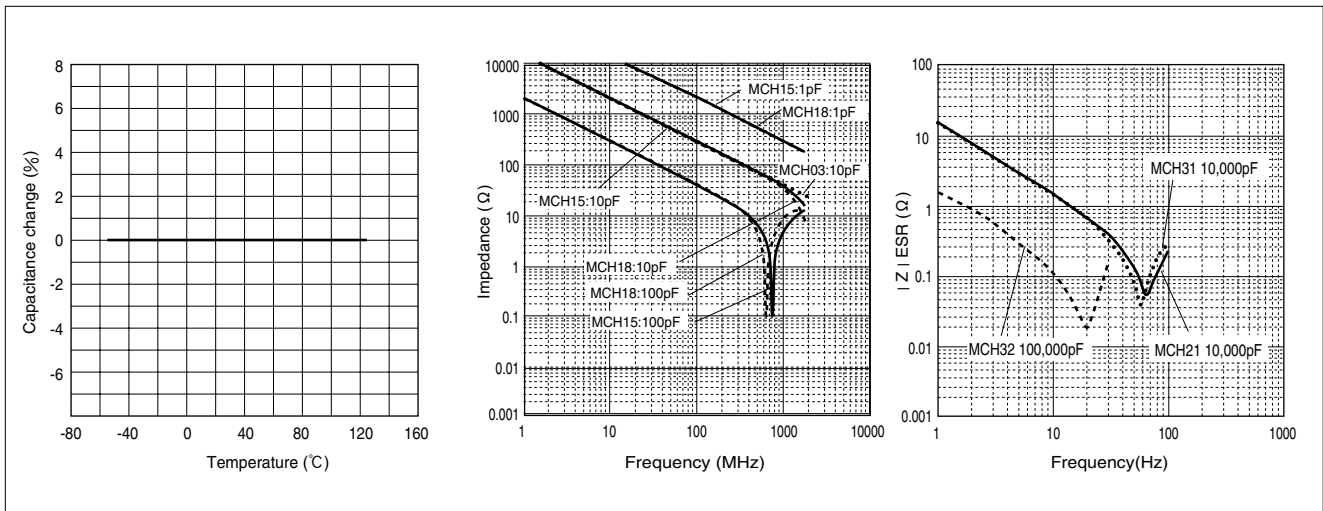
● High dielectric constant capacitors

Capacitance (pF)	Temperature		CN (R) (B) (X7R) Characteristic				CN (X5R) Characteristic	
	Rated voltage(V)		50V	25V	16V	10V	10V	6.3V
	Tolerance	Product thickness(mm)	Product No.	Product No.	Product No.	Product No.	Product No.	Product No.
1,000	K (±10%)	0.6±0.1	MCH215CN102KK					
1,500			MCH215CN152KK					
2,200			MCH215CN222KK					
3,300			MCH215CN332KK					
4,700			MCH215CN472KK					
6,800			MCH215CN682KK					
10,000			MCH215CN103KK					
15,000			MCH215CN153KK					
22,000			MCH215CN223KK					
33,000			MCH215CN333KK					
47,000			MCH215CN473KK					
68,000			MCH215CN683KK					
100,000			MCH215CN104KP					
150,000				MCH212CN154KP				
220,000				MCH212CN224KP				
330,000						MCH213CN334KP		
470,000						MCH213CN474KP		
680,000						MCH213CN684KP		
1,000,000						MCH213CN105KP		
1,500,000							MCH214CN155KP	
2,200,000							MCH214CN225KP	
3,300,000								MCH214CN335KP
4,700,000								MCH214CN475KP
10,000,000		M (±20%)						MCH218CN106MP

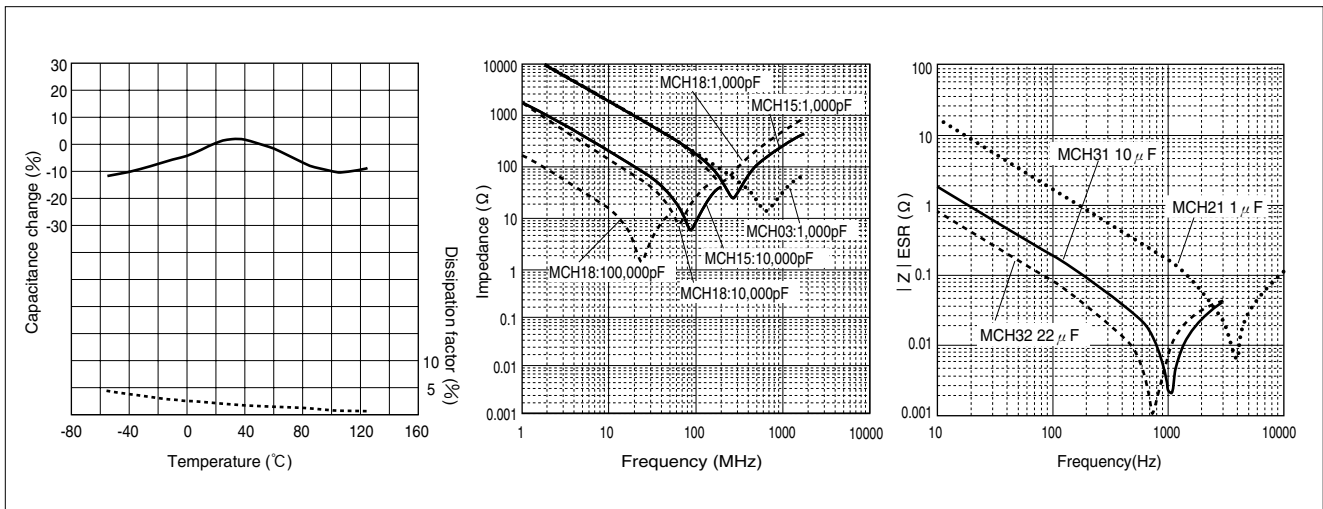
Capacitance (pF)	Temperature		FN (F) (Y5V) Characteristic			
	Rated voltage(V)		50V	16V	10V	
	Tolerance	Product thickness(mm)	Product No.	Product No.	Product No.	
10,000	Z (+80%, -20%)	0.6±0.1	MCH215FN103ZK			
22,000			MCH215FN223ZK			
47,000			MCH215FN473ZK			
100,000			MCH215FN104ZK			
1,000,000		1.25±0.2		MCH213FN105ZP		
2,200,000				MCH213FN225ZP		
4,700,000				MCH213FN475ZP		
10,000,000						MCH214FN106ZP

■ **Characteristics**

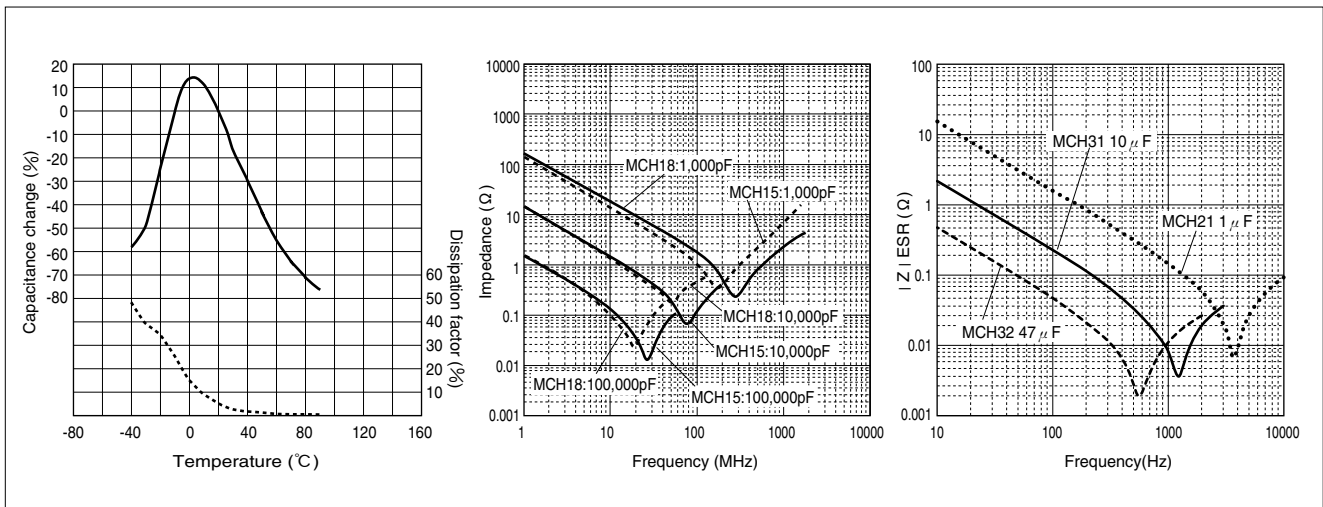
● **A (CG) (C0G) (CH) Characteristics**



● **CN (R) (B) (X5R) (X7R) Characteristics**

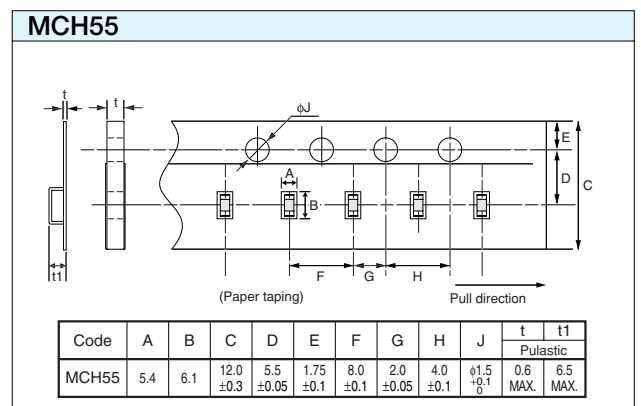
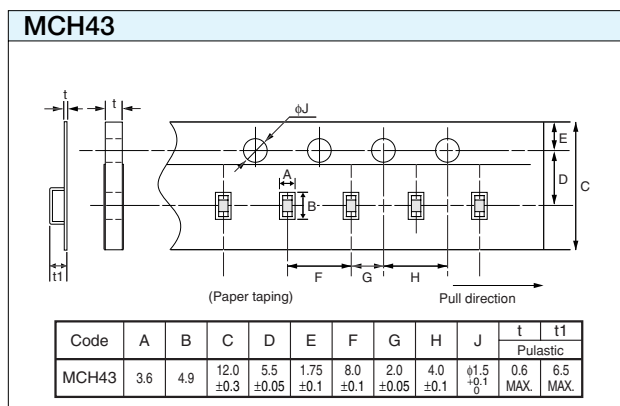
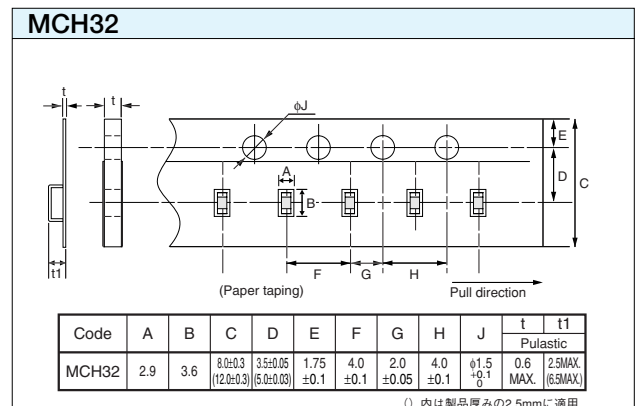
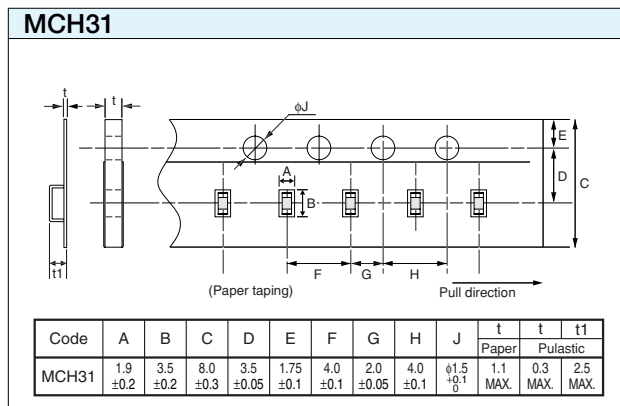
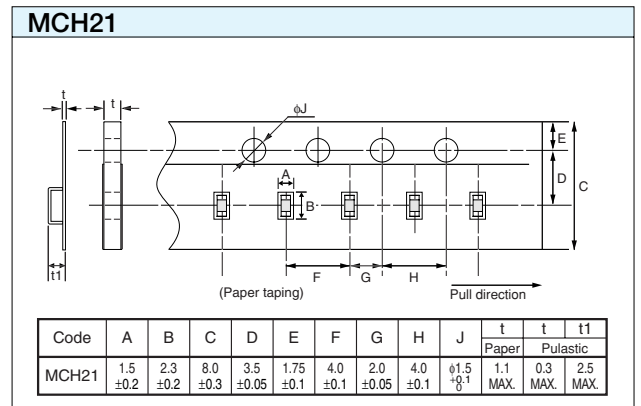
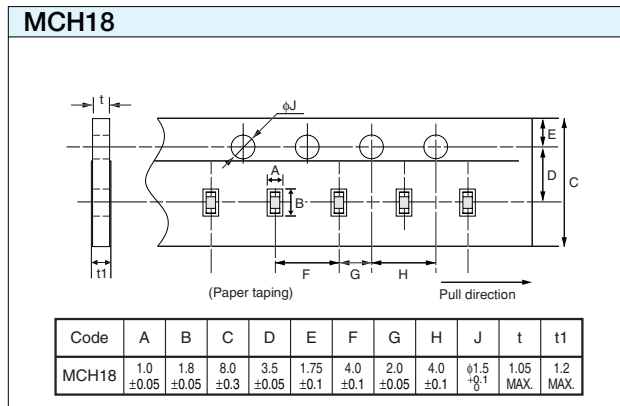
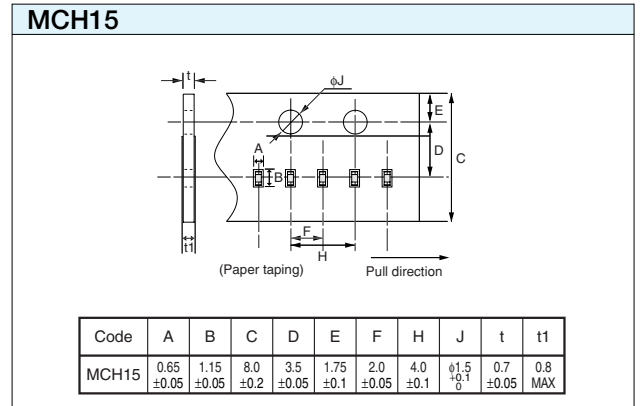
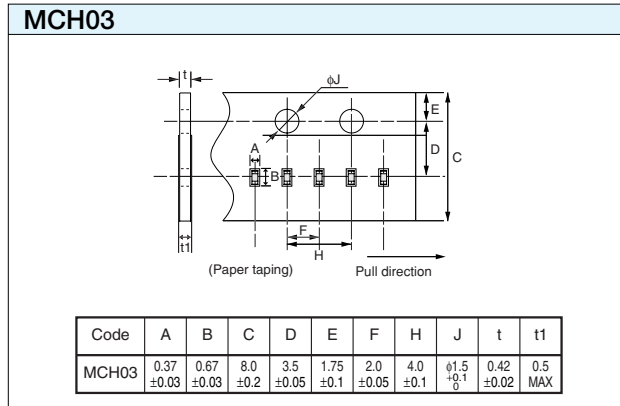


● **FN (F) (Y5V) Characteristics**



■ Packing specification

● Carrier tape dimensions (Unit:mm)

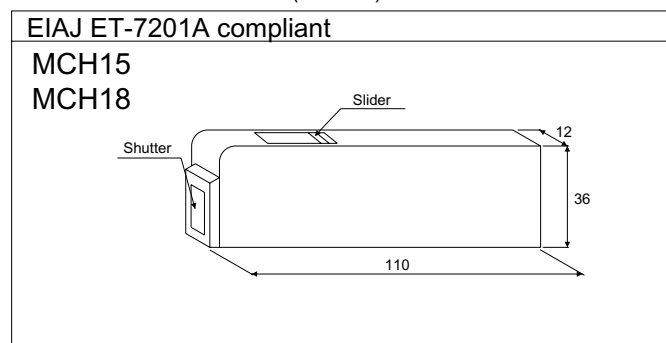


■ Packing specification

● Reel dimensions (Unit:mm)

φ180mm Plastic reel	φ330mm Plastic reel
<p>MCH03 MCH15 MCH18 MCH21 MCH31 MCH32 MCH43 MCH55</p>	<p>MCH15 MCH18</p>

● Bulk case dimensions (Unit:mm)



● For fundamental considerations on capacitors, refer to Electric Industries Association of Japan, technical report, "EIAJ RCR-2333, Guideline of notabilia for fixed multilayer ceramic capacitors for use in electronic equipment".

- The contents described herein are correct as of Sep, 2003.
- ROHM assumes no responsibility for the use of any circuits described herein, conveys no license under any patent or other right, and makes no representations that the circuits are free from patent infringement. Specifications subject to change without notice for the purpose of improvement.

The products listed in this catalog are designed to be used with ordinary electronic equipment or devices (such as audio visual equipment, office-automation equipment, communications devices, electrical appliances and electronic toys). Should you intend to use these products with equipment or devices which require an extremely high level of reliability and the malfunction of which would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), please be sure to consult with our sales representative in advance.

Excellence in Electronics



ROHM CO., LTD.

21, Saiin Mizosaki-cho, Ukyo-ku, Kyoto
615-8585, Japan
TEL: (075)311-2121 FAX: (075)315-0172
URL: <http://www.rohm.com>

Contact us for further information about the products.

Atlanta U.S.A. / ROHM ELECTRONICS EASTERN SALES DIVISION
(DIVISION OF ROHM ELE.U.S.A.,LLC)

TEL: +1(770)754-5972 FAX: +1(770)754-0691

Dallas U.S.A. / ROHM ELECTRONICS CENTRAL SALES DIVISION
(DIVISION OF ROHM ELE.U.S.A.,LLC)

TEL: +1(972)312-8818 FAX: +1(972)312-0330

San Diego U.S.A. / ROHM ELECTRONICS WESTERN SALES DIVISION
(DIVISION OF ROHM ELE.U.S.A.,LLC)

TEL: +1(858)625-3630 FAX: +1(858)625-3670

Germany / ROHM ELECTRONICS GERMANY SALES DIVISION
(DIVISION OF ROHM ELECTRONICS GMBH)

TEL: +49(2154)9210 FAX: +49(2154)921400

United Kingdom / ROHM ELECTRONICS UK SALES DIVISION
(DIVISION OF ROHM ELECTRONICS GMBH)

TEL: +44(1)908-282-866 FAX: +44(1)908-282-528

France / ROHM ELECTRONICS FRANCE SALES DIVISION
(DIVISION OF ROHM ELECTRONICS GMBH)

TEL: +33(1)41 23 14 00 FAX: +33(1)41 23 14 30

Hong Kong China / ROHM ELECTRONICS (H.K.) CO., LTD.

TEL: +852(2)7406262 FAX: +852(2)3758971

Shanghai China / ROHM ELECTRONICS (SHANGHAI) CO., LTD.

TEL: +86(21)6279-2727 FAX: +86(21)6247-2066

Dalian China / ROHM ELECTRONICS TRADING (DALIAN) CO., LTD.

TEL: +86(41)1230-8549 FAX: +86(41)1230-8537

Beijing China / BEIJING REPRESENTATIVE OFFICE

TEL: +86(10)8451-2426 FAX: +86(10)6460-9518

Taiwan / ROHM ELECTRONICS TAIWAN CO., LTD.

TEL: +886(2)2500-6956 FAX: +886(2)2503-2869

Korea / ROHM ELECTRONICS KOREA CORPORATION

TEL: +82(2)8182-700 FAX: +82(2)8182-715

Singapore / ROHM ELECTRONICS ASIA PTE. LTD. (RES/REI)

TEL: +65-332-2322 FAX: +65-332-5662

Malaysia / ROHM ELECTRONICS (MALAYSIA) SDN. BHD.

TEL: +60(3)7958-8355 FAX: +60(3)7958-8377

Philippines / ROHM ELECTRONICS (PHILIPPINES) SALES CORPORATION

TEL: +63(2)807-6872 FAX: +63(2)809-1422

Thailand / ROHM ELECTRONICS (THAILAND) CO., LTD.

TEL: +66(2)254-4890 FAX: +66(2)256-6334

Notes

- No technical content pages of this document may be reproduced in any form or transmitted by any means without prior permission of ROHM CO.,LTD.
- The contents described herein are subject to change without notice. The specifications for the product described in this document are for reference only. Upon actual use, therefore, please request that specifications to be separately delivered.
- Application circuit diagrams and circuit constants contained herein are shown as examples of standard use and operation. Please pay careful attention to the peripheral conditions when designing circuits and deciding upon circuit constants in the set.
- Any data, including, but not limited to application circuit diagrams information, described herein are intended only as illustrations of such devices and not as the specifications for such devices. ROHM CO.,LTD. disclaims any warranty that any use of such devices shall be free from infringement of any third party's intellectual property rights or other proprietary rights, and further, assumes no liability of whatsoever nature in the event of any such infringement, or arising from or connected with or related to the use of such devices.
- Upon the sale of any such devices, other than for buyer's right to use such devices itself, resell or otherwise dispose of the same, no express or implied right or license to practice or commercially exploit any intellectual property rights or other proprietary rights owned or controlled by
- ROHM CO., LTD. is granted to any such buyer.
- Products listed in this document use silicon as a basic material.
Products listed in this document are no antiradiation design.

The products listed in this document are designed to be used with ordinary electronic equipment or devices (such as audio visual equipment, office-automation equipment, communications devices, electrical appliances and electronic toys).

Should you intend to use these products with equipment or devices which require an extremely high level of reliability and the malfunction of which would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), please be sure to consult with our sales representative in advance.

About Export Control Order in Japan

Products described herein are the objects of controlled goods in Annex 1 (Item 16) of Export Trade Control Order in Japan.

In case of export from Japan, please confirm if it applies to "objective" criteria or an "informed" (by MITI clause) on the basis of "catch all controls for Non-Proliferation of Weapons of Mass Destruction.