

CR03AM-16

Thyristor

Low Power Use

REJ03G0355-0100

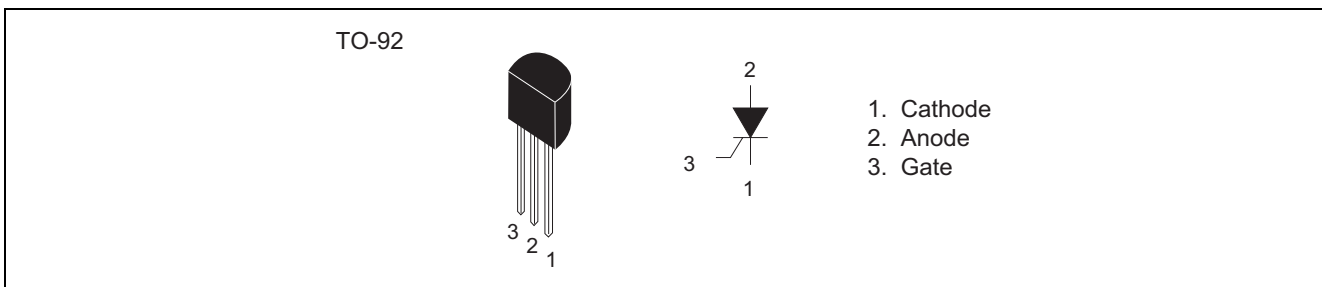
Rev.1.00

Aug.20.2004

Features

- $I_{T(AV)}$: 0.3 A
- V_{DRM} : 800 V
- I_{GT} : 100 μ A
- Non-Insulated Type
- Glass Passivation Type

Outline



Applications

Leakage protector, timer, and gas igniter

Maximum Ratings

Parameter	Symbol	Voltage class	Unit
		16	
Repetitive peak reverse voltage	V_{RRM}	800	V
Non-repetitive peak reverse voltage	V_{RSM}	960	V
DC reverse voltage	$V_{R(DC)}$	640	V
Repetitive peak off-state voltage ^{Note1}	V_{DRM}	800	V
Non-repetitive peak off-state voltage ^{Note1}	V_{DSM}	960	V
DC off-state voltage ^{Note1}	$V_{D(DC)}$	640	V

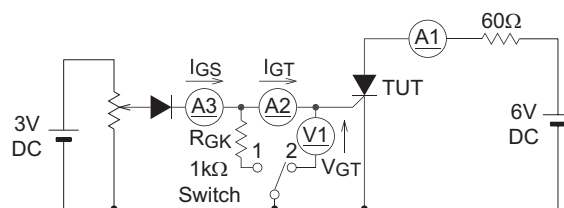
Parameter	Symbol	Ratings	Unit	Conditions
RMS on-state current	$I_{T(RMS)}$	0.47	A	
Average on-state current	$I_{T(AV)}$	0.3	A	Commercial frequency, sine half wave 180° conduction, $T_a = 47^\circ\text{C}$
Surge on-state current	I_{TSM}	20	A	60Hz sine half wave 1 full cycle, peak value, non-repetitive
I^2t for fusing	I^2t	1.6	A^2s	Value corresponding to 1 cycle of half wave 60Hz, surge on-state current
Peak gate power dissipation	P_{GM}	0.5	W	
Average gate power dissipation	$P_{G(AV)}$	0.1	W	
Peak gate forward voltage	V_{FGM}	6	V	
Peak gate reverse voltage	V_{RGM}	6	V	
Peak gate forward current	I_{FGM}	0.3	A	
Junction temperature	T_j	- 40 to +110	$^\circ\text{C}$	
Storage temperature	T_{stg}	- 40 to +125	$^\circ\text{C}$	
Mass	—	0.23	g	Typical value

Notes: 1. With gate to cathode resistance $R_{GK} = 1 \text{ k}\Omega$.

Electrical Characteristics

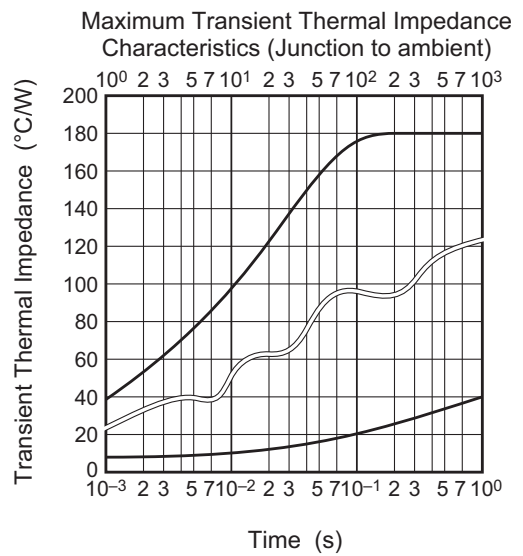
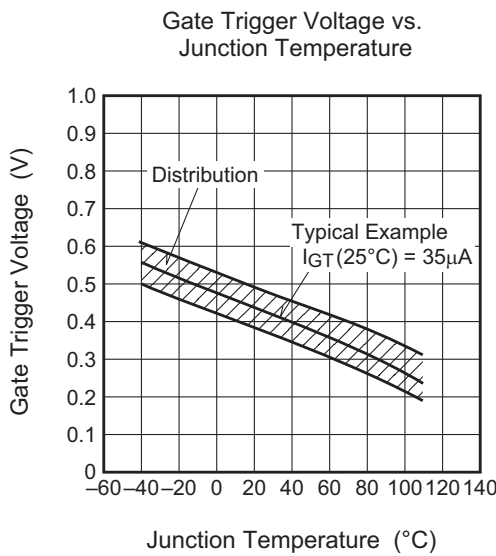
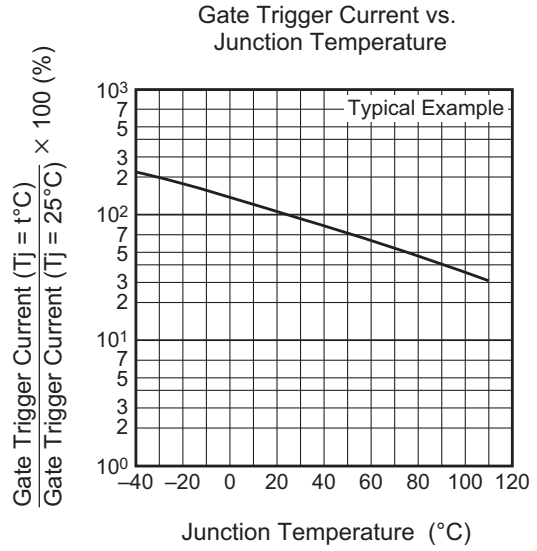
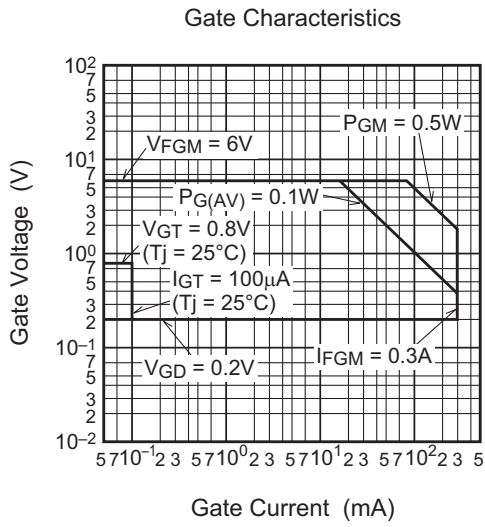
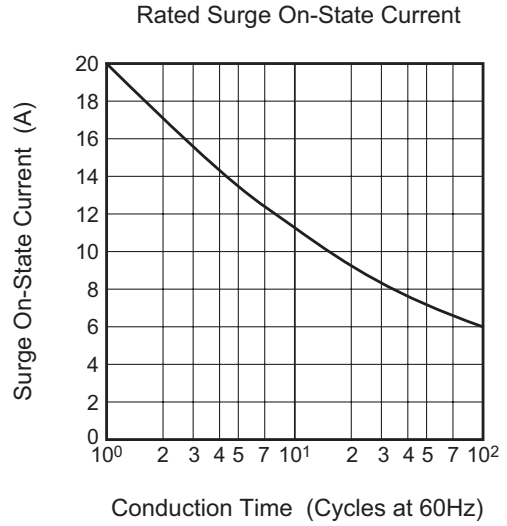
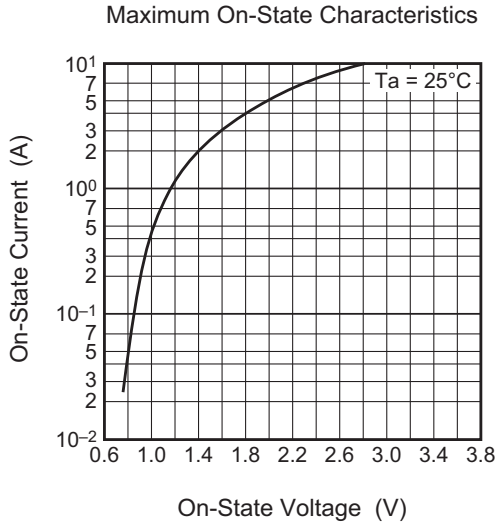
Parameter	Symbol	Rated value			Unit	Test conditions
		Min.	Typ.	Max.		
Repetitive peak reverse current	I_{RRM}	—	—	0.1	mA	$T_j = 110^\circ\text{C}$, V_{RRM} applied
Repetitive peak off-state current	I_{DRM}	—	—	0.1	mA	$T_j = 110^\circ\text{C}$, V_{DRM} applied, $R_{GK} = 1 \text{ k}\Omega$
On-state voltage	V_{TM}	—	—	1.8	V	$T_a = 25^\circ\text{C}$, $I_{TM} = 4 \text{ A}$, instantaneous value
Gate trigger voltage	V_{GT}	—	—	0.8	V	$T_j = 25^\circ\text{C}$, $V_D = 6 \text{ V}$, $I_T = 0.1 \text{ A}$ ^{Note2}
Gate non-trigger voltage	V_{GD}	0.2	—	—	V	$T_j = 110^\circ\text{C}$, $V_D = 1/2 V_{DRM}$, $R_{GK} = 1 \text{ k}\Omega$
Gate trigger current	I_{GT}	1	—	100	μA	$T_j = 25^\circ\text{C}$, $V_D = 6 \text{ V}$, $I_T = 0.1 \text{ A}$ ^{Note2}
Holding current	I_H	—	1.5	3	mA	$T_j = 25^\circ\text{C}$, $V_D = 12 \text{ V}$, $R_{GK} = 1 \text{ k}\Omega$
Thermal resistance	$R_{th(j-a)}$	—	—	180	$^\circ\text{C/W}$	Junction to ambient

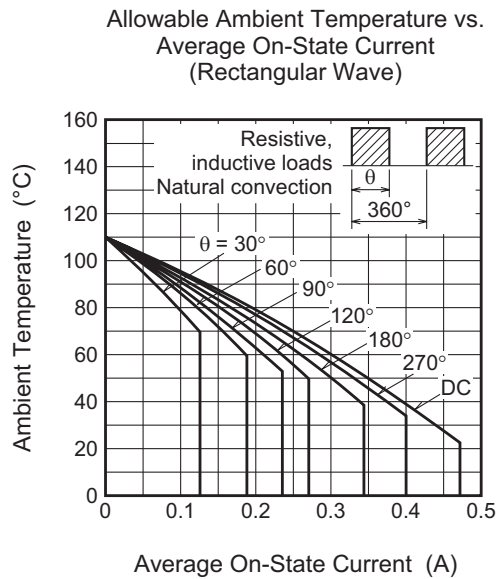
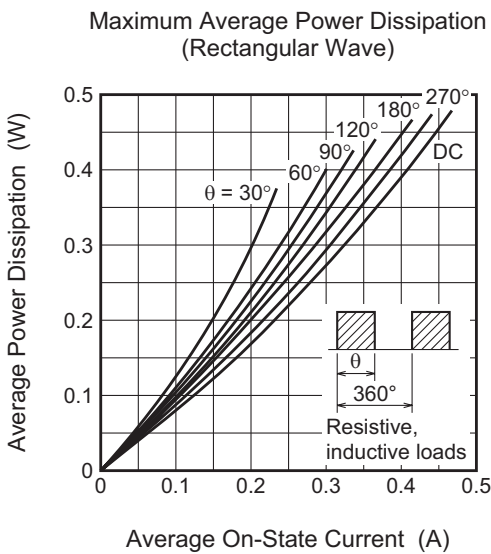
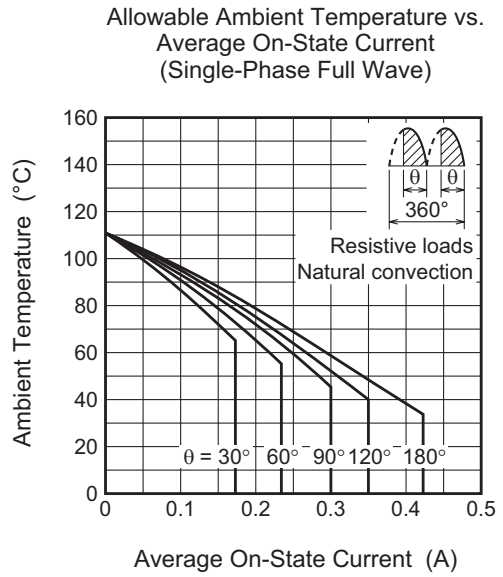
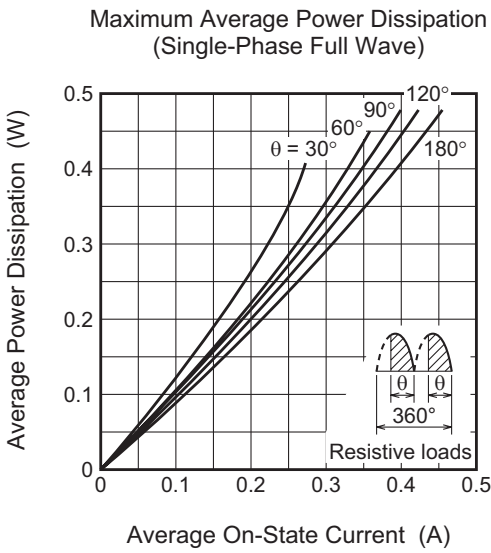
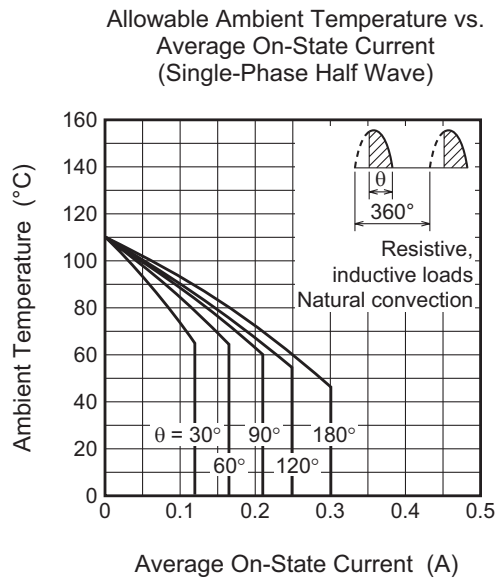
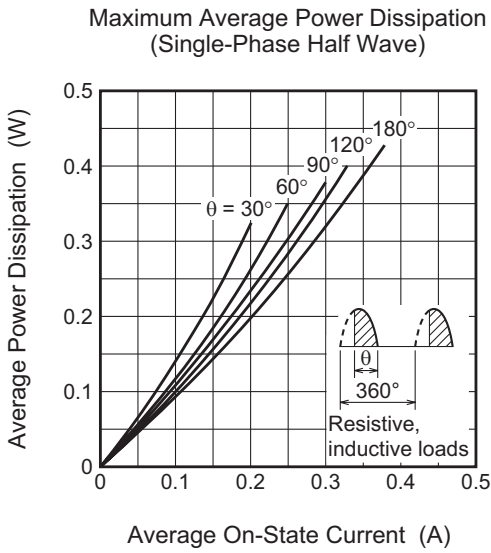
Notes: 2. I_{GT} , V_{GT} measurement circuit.



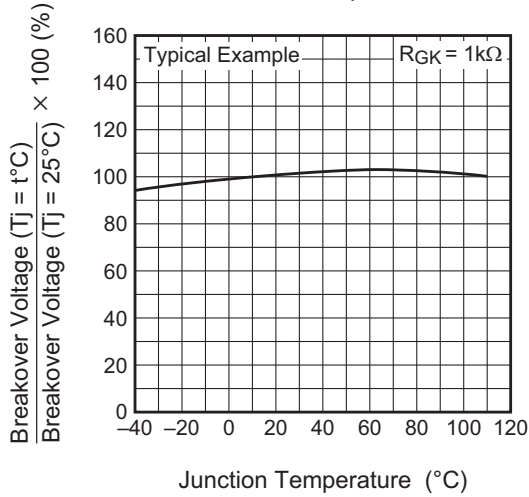
Switch 1 : I_{GT} measurement
 Switch 2 : V_{GT} measurement
 (Inner resistance of voltage meter is about $1 \text{ k}\Omega$)

Performance Curves

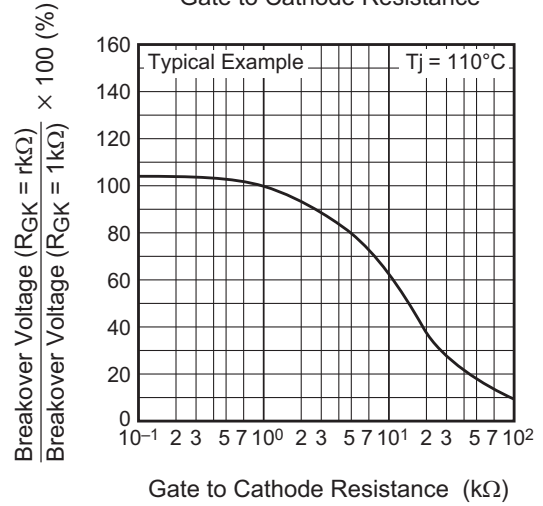




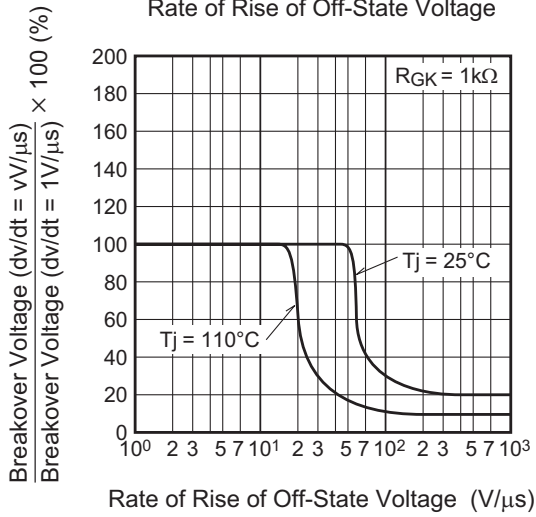
Breakover Voltage vs. Junction Temperature



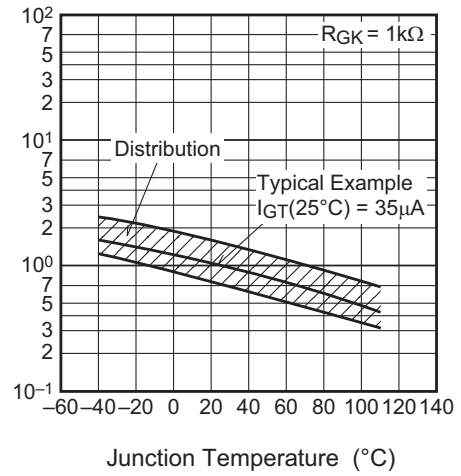
Breakover Voltage vs. Gate to Cathode Resistance



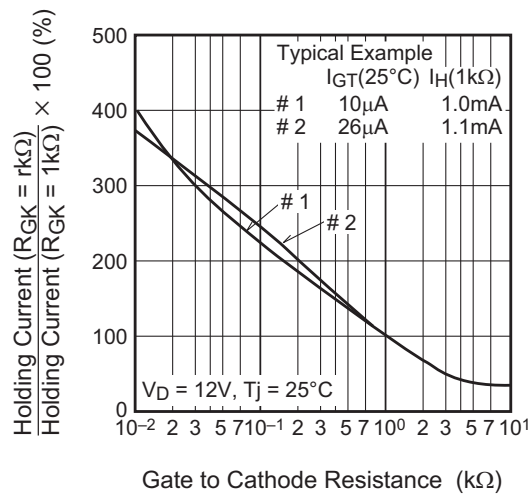
Breakover Voltage vs. Rate of Rise of Off-State Voltage



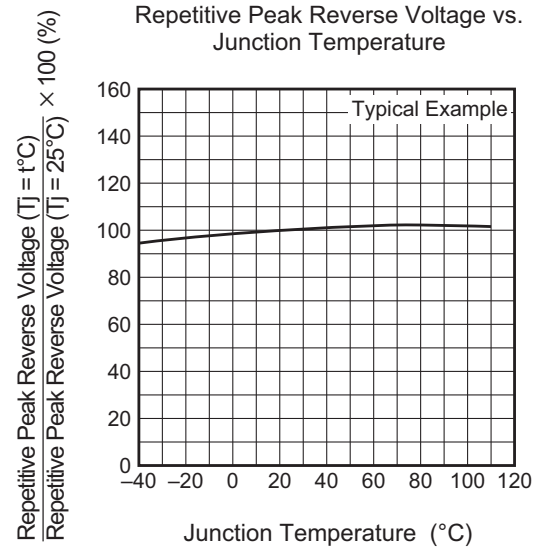
Holding Current vs. Junction Temperature

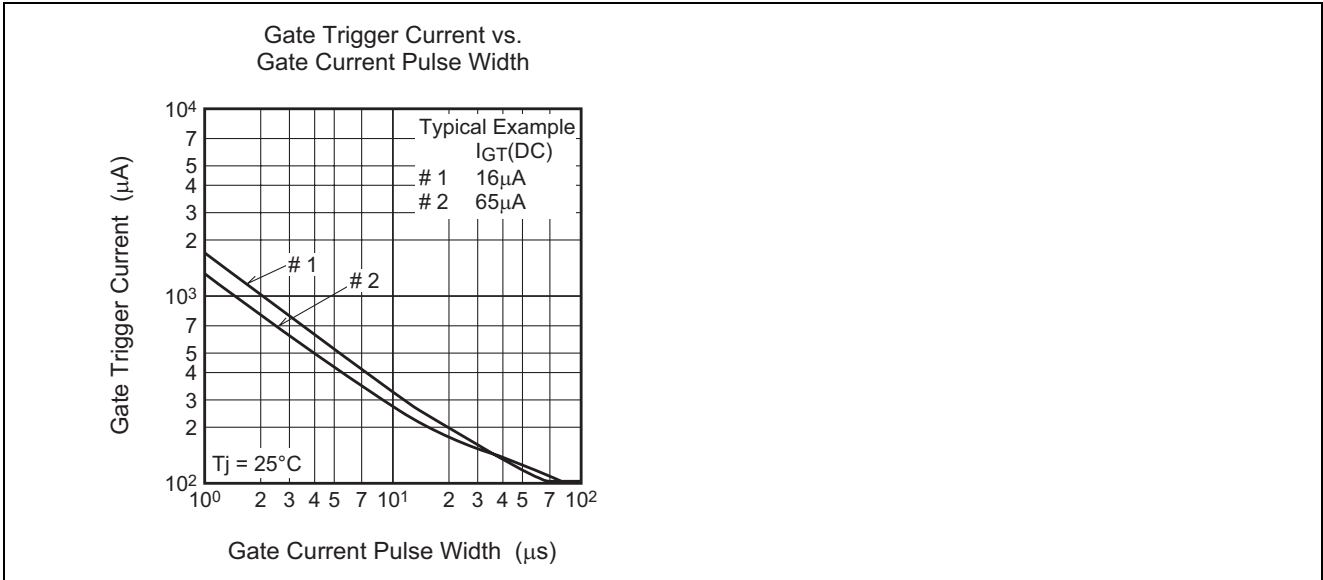


Holding Current vs. Gate to Cathode Resistance



Repetitive Peak Reverse Voltage vs. Junction Temperature





Package Dimensions

TO-92

EIAJ Package Code	JEDEC Code	Mass (g) (reference value)	Lead Material
Conforms	Conforms	0.23	Cu alloy

Technical drawing showing the package dimensions for TO-92. The top view shows a square body with a diameter of $\phi 5.0$ max and a width of 4.4. The lead length is 1.15 min. The lead spacing is 1.25. The side view shows a height of 5.0 max and a lead length of 1.15 min. The lead view shows a circumscribed circle of $\phi 0.7$, a lead height of 1.1, and a lead width of 3.6.

Note 1) The dimensional figures indicate representative values unless otherwise the tolerance is specified.

Symbol	Dimension in Millimeters		
	Min	Typ	Max
A	—	—	—
A ₁	—	—	—
A ₂	—	—	—
b	—	—	—
D	—	—	—
E	—	—	—
e	—	—	—
x	—	—	—
y	—	—	—
y ₁	—	—	—
ZD	—	—	—
ZE	—	—	—

Order Code

Lead form	Standard packing	Quantity	Standard order code	Standard order code example
Straight type	Vinyl sack	500	Type name	CR03AM-16
Lead form	Vinyl sack	500	Type name – Lead forming code	CR03AM-16-A6
Form A8	Taping	2000	Type name – TB	CR03AM-16-TB

Note : Please confirm the specification about the shipping in detail.

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