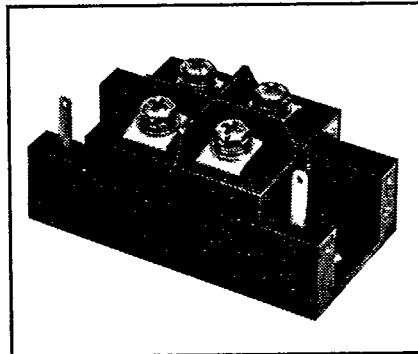
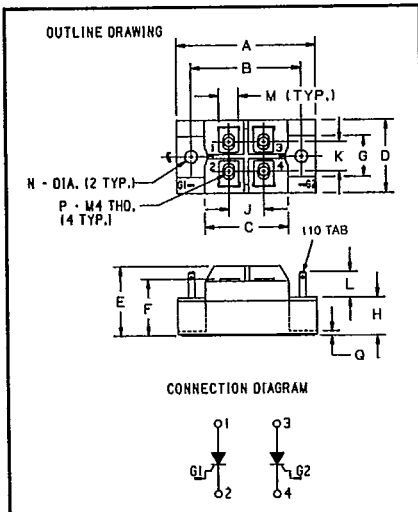




CT230402
CT230802

Powerex, Inc., Hillis Street, Youngwood, Pennsylvania 15697 (412) 925-7272
Powerex Europe, S.A., 428 Avenue G. Durand, BP107, 72003 Le Mans, France (43) 72.75.15

Split Dual SCR
POW-R-BLOK™ Modules
20 Amperes/400-800 Volts



CT230402, CT230802
Split Dual SCR POW-R-BLOK™
Modules
20 Amperes/400-800 Volts

400-800 Volts CT230402,
CT230802 Outline Drawing

Dimension	Inches	Millimeters
A	2.362 Max.	60 Max.
B	1.874	47.6
C	1.417	36
D	1.260 Max.	32 Max.
E	1.181 Max.	30 Max.
F	.964	24.5
G	.703	18
H	.650	16.5
J	.591	15
K	.512	13
L	.433	11
M	.335	8.5
N	.216 Dia.	5.5 Dia.
P	M4 Metric	M4
Q	.079	2

Description

Powerex Split Dual SCR POW-R-BLOK™ Modules are designed for use in applications requiring control and rectification. The modules are isolated for easy mounting with other components on common heatsinks.

Features:

- Isolated Mounting
- Glass Passivated Chips
- Metal Baseplate
- Low Thermal Impedance
- Four Terminal Flexibility

Applications:

- Battery Supplies
- Contactless Switches
- Furnace Control
- Light Dimmers

Ordering Information

Example: Select the complete eight digit module part number you desire from the table — i.e. CT230402 is a 400 Volt, 20 Ampere Split Dual SCR POW-R-BLOK™ Module.

Type	Voltage Volts (x100)	Current Rating Amperes (x10)
CT23	04	02
	08	



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Split Dual SCR POW-R-BLOK™ Modules

20 Amperes/400-800 Volts

Absolute Maximum Ratings

Characteristics	Symbol	CT230402	CT230802	Units
Peak Forward Blocking Voltage	V_{DRM}	400	800	Volts
Transient Peak Forward Blocking Voltage (Non-Repetitive) $t < 5$ ms	V_{DSM}	480	960	Volts
DC Forward Blocking Voltage	$V_{D(DC)}$	320	640	Volts
Peak Reverse Blocking Voltage	V_{RRM}	400	800	Volts
Transient Peak Reverse Blocking Voltage (Non-Repetitive) $t < 5$ ms	V_{RSM}	480	960	Volts
DC Reverse Blocking Voltage	$V_{R(DC)}$	320	640	Volts
RMS On-State Current	$I_{T(RMS)}$	30	30	Amperes
Average On-State Current, $T_C = 87^\circ\text{C}$	$I_{T(AV)}$	20	20	Amperes
Peak One-Cycle Surge (Non-Repetitive) On-State Current (60Hz)	I_{TSM}	400	400	Amperes
Peak One-Cycle Surge (Non-Repetitive) On-State Current (50Hz)	I_{TSM}	365	365	Amperes
I^2t (for Fusing), 8.3 milliseconds	I^2t	670	670	A^2sec
Critical Rate-of-Rise of On-State Current ①	di/dt	100	100	Amperes/ μs
Peak Gate Power Dissipation	P_{GM}	5.0	5.0	Watts
Average Gate Power Dissipation	$P_{G(AV)}$	0.5	0.5	Watts
Peak Forward Gate Voltage	V_{GFM}	10	10	Volts
Peak Reverse Gate Voltage	V_{GRM}	5.0	5.0	Volts
Peak Forward Gate Current	I_{GFM}	2.0	2.0	Amperes
Storage Temperature	T_{STG}	-40 to 125	-40 to 125	$^\circ\text{C}$
Operating Temperature	T_J	-40 to 125	-40 to 125	$^\circ\text{C}$
Maximum Mounting Torque M5 Mounting Screw	—	17	17	in.-lb.
Maximum Terminal Torque M4 Terminal Screw	—	12	12	in.-lb.
Module Weight (Typical)	—	80	80	Grams
V Isolation	V_{RMS}	2000	2000	Volts

① $T_J = 125^\circ\text{C}$, $I_G = 0.5$ A, $V_D = 1/2 V_{DRM}$



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CT230402, CT230802

Split Dual SCR POW-R-BLOK™ Modules

20 Amperes/400-800 Volts

Electrical and Thermal Characteristics, $T_J=25^\circ\text{C}$ unless otherwise specified

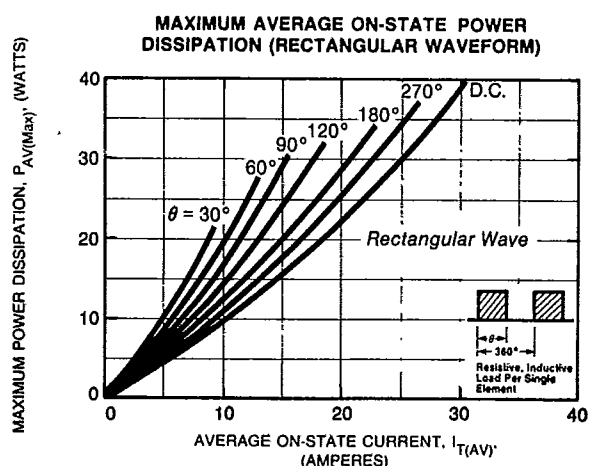
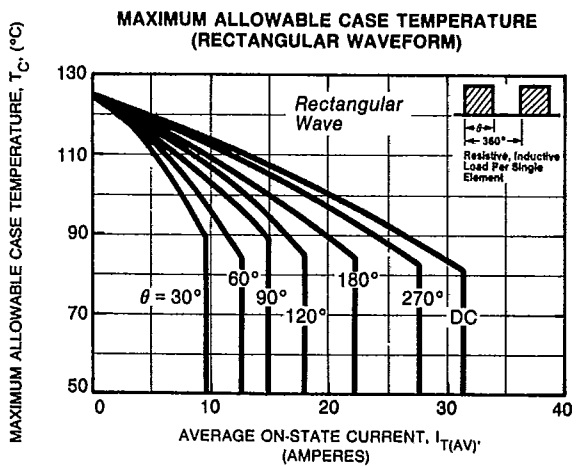
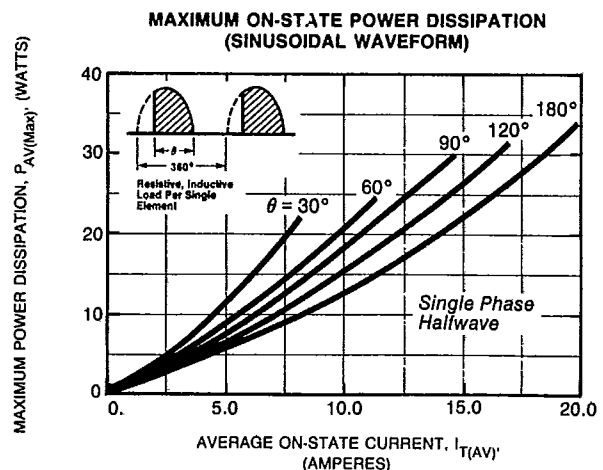
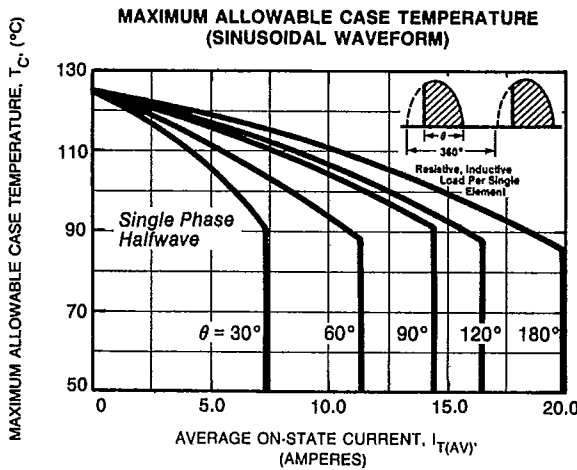
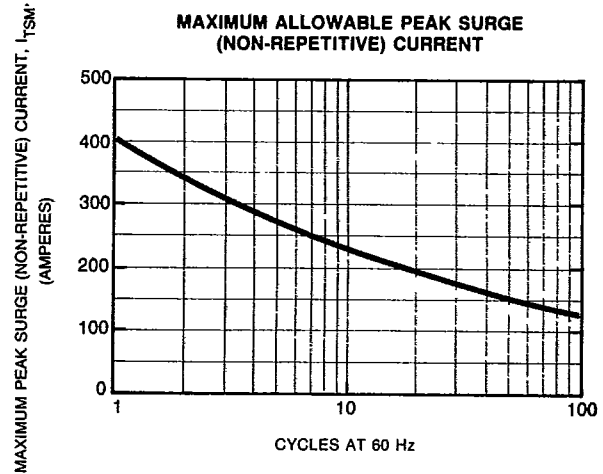
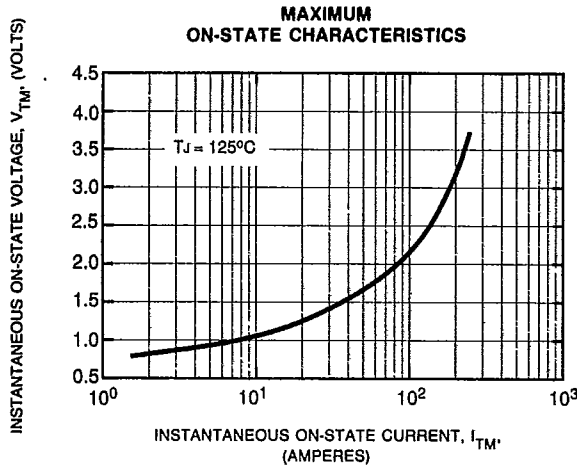
Characteristic	Symbol	Test Conditions	CT230402	CT230802	Units
Blocking State Maximums					
Forward Leakage Current, Peak	I_{DRM}	$T_J = 125^\circ\text{C}$, $V_{DRM} = \text{rated}$	4.0		mA
Reverse Leakage Current, Peak	I_{RRM}	$T_J = 125^\circ\text{C}$, $V_{RRM} = \text{rated}$	4.0		mA
Conducting State Maximums					
Peak On-State Voltage	V_{TM}	$I_{TM} = 60\text{A}$	1.8		Volts
Switching Minimums					
Critical Rate of Rise of Off-State Voltage	dv/dt	$T_J = 125^\circ\text{C}$, $V_D = 2/3 V_{DRM}$	500		Volts/ μsec
Thermal Maximums					
Thermal Resistance, Junction to Case	$R_{\theta JC}$	Per Device	1.0		$^\circ\text{C/Watt}$
Thermal Resistance, Case to Sink Lubricated	$R_{\theta CS}$	Per Device	0.25		$^\circ\text{C/Watt}$
Gate Parameters Maximums					
Gate Current to Trigger	I_{GT}	$V_D = 6\text{ V}$, $R_L = 2\ \Omega$	50		mA
Gate Voltage to Trigger	V_{GT}	$V_D = 6\text{ V}$, $R_L = 2\ \Omega$	3.0		Volts
Non-Triggering Gate Voltage	V_{GDM}	$T_J = 125^\circ\text{C}$, $V_D = 1/2 V_{DRM}$	0.25		Volts



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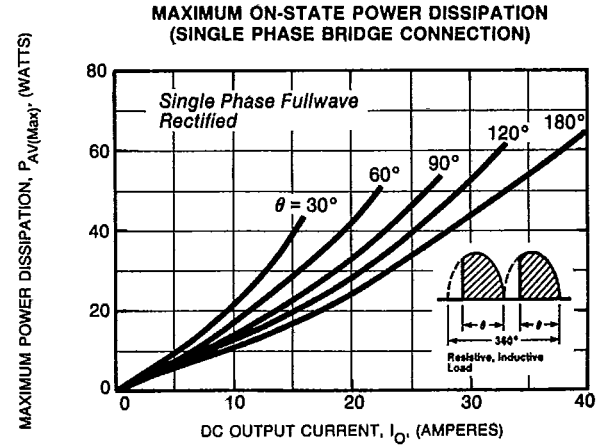
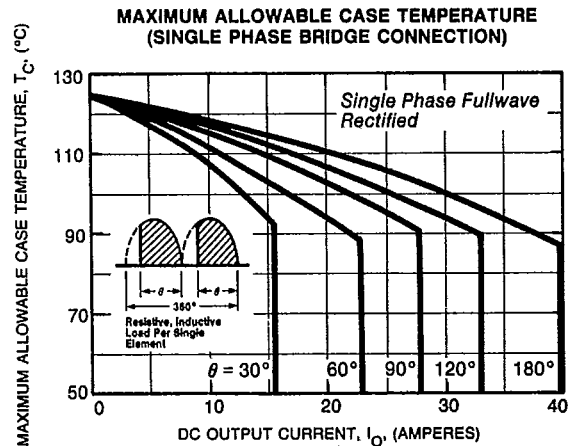
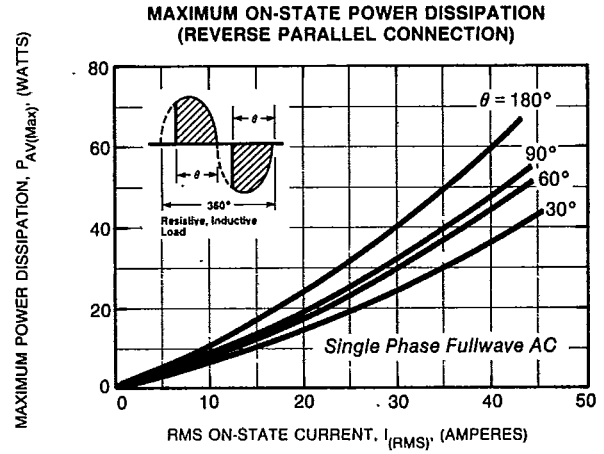
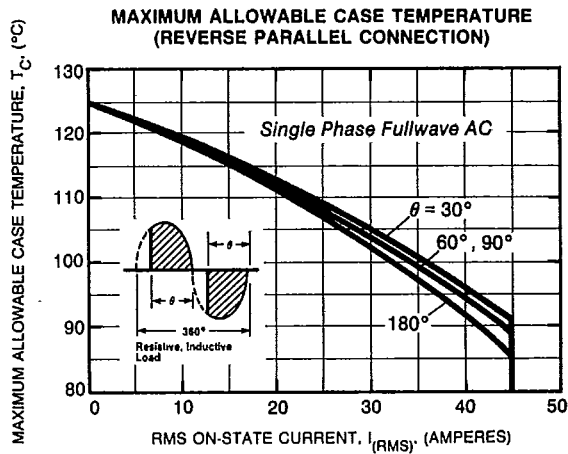
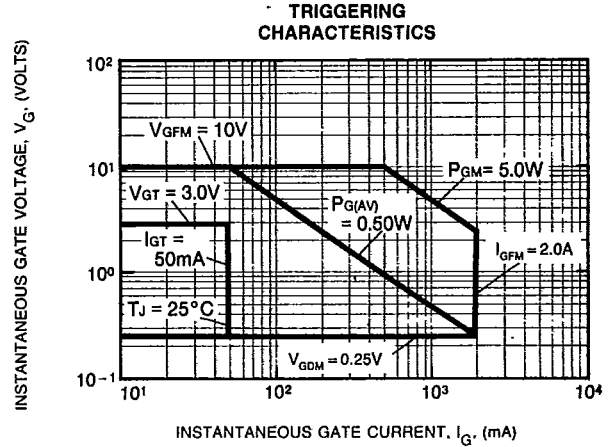
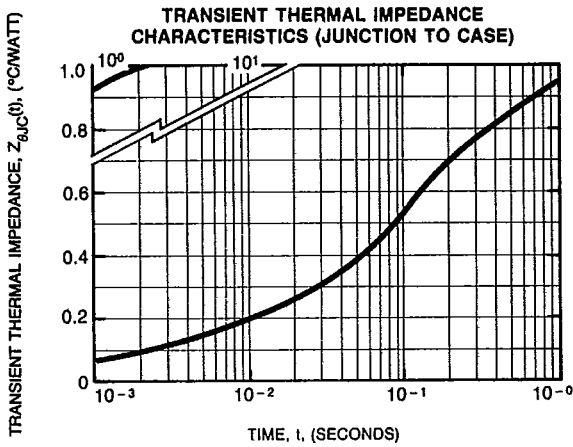
CT230402, CT230802
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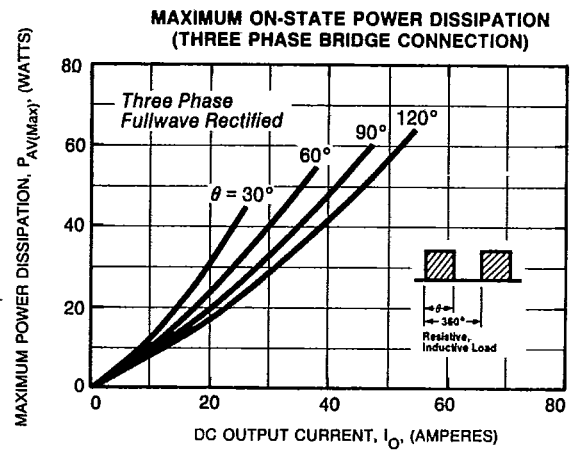
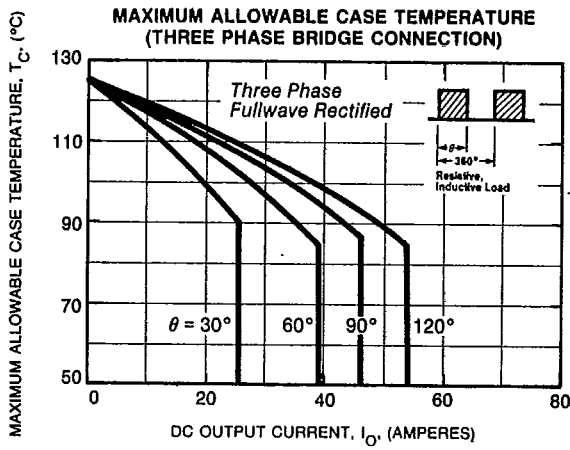
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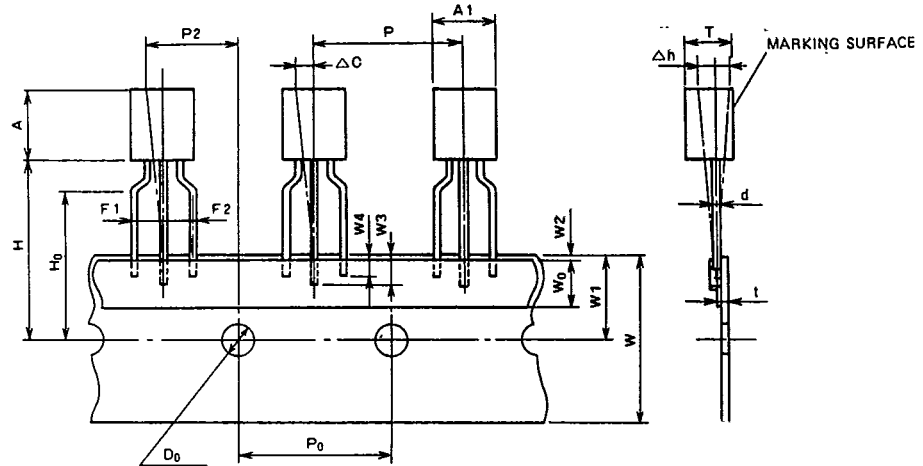
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 Powerex Europe, S.A., 428 Avenue G. Durand, BP107, 72003 Le Mans, France (43) 41.14.14

Taping

STANDARD SPECIFICATIONS FOR TAPING OF MOLDED PACKAGE THYRISTORS AND TRIACS

TO-92 Package

Thyristor
CR02AM, CR03AM, CR04AM
Triac
BCR1AM



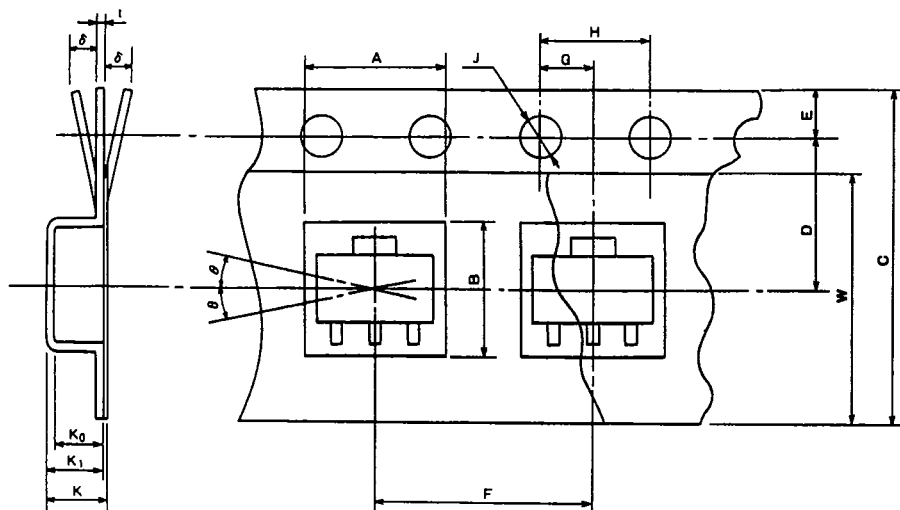
Taping dimensions

Description of symbol	Symbol	Dimensions (Unit:mm)	Remark
Product width	A1	5.0 MAX	
Product height	A	5.0 MAX	
Product thickness	T	3.7 MAX	
Lead wire diameter	d	0.6 MAX	
Sticker lead wire length (1)	W3	2.5 MIN	
Sticker lead wire length (2)	W4	2.0 MIN	
Pitch between products	P	12.7 ± 1.0	
Feed hole pitch	P ₀	12.7 ± 0.3	The cumulative pitch error is ± 1mm per 20 pitches.
Feed hole deviation (1)	P2	6.35 ± 1.3	
Distance between lead wires	F1, F2	2.5 ± 0.4	
Defective product (1)	Δh	0 ± 2.0	
Tape width	W	18.0 ± ^{1.0} / _{0.5}	
Sticker tape width	W ₀	6.0 ± 0.5	
Feed hole deviation (2)	W1	9.0 ± 0.5	
Sticker tape deviation	W2	0.5 MAX	
Position of product bottom surface	H	17.5 MIN	
Lynch height of lead wire	H ₀	16.0 ± 0.5	
Feed hole diameter	D ₀	4.0 ± 0.2	
Tape thickness	t	0.7 ± 0.2	
Defective product (2)	ΔC	0 ± 1.0	



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Powerex Semiconductor Data Book
 Taping



SOT-89 Package

Thyristor
 CR08AS

Taping dimensions

Description of symbol		Symbol	Dimensions/angles Unit:mm	Remark
Parts Insertion	Height	A	5.0 ± 0.1	Cross-section of the surface 0.5mm above the Inner bottom
	Width	B	4.6 ± 0.1	Cross-section of the surface 0.5mm above the inner bottom
Concave square hole	Depth	K ₀	1.8 ± 0.1	Inner space
	Pitch	F	8.0 ± 0.1	Cumulative error +0.1/-0.3 MAX/10 pitches
Round feed hole	Diameter	J	$\phi 1.5 \pm 0.05$	
	Pitch	H	4.0 ± 0.1	Cumulative error +0.1/-0.3 MAX/10 pitches
	Position	E	1.5 ± 0.1	Distance between the tape edge and the hole center
Distance between center lines	Vertical	G	2.0 ± 0.5	Center line of concave square hole and round feed hole
	Horizontal	D	5.65 ± 0.05	Center line of concave square hole and round feed hole
Cover tape	Width	W	$9.5 + 0.3/-0$	Thickness: 0.1 MAX
Carrier tape	Width	C	12 ± 0.2	Warp ± 0.3 MAX
	Thickness	t	0.3 ± 0.05	
	Package hole depth	K ₁	2.1 ± 0.1	
Device	Package dimensions	—	—	As shown in (e)
	Inclination	θ	30° MAX.	
Total Thickness		K	2.3 ± 0.1	Total thickness including cover and carrier tapes