

# TECHSEM

## Capsule Type Devices Shortform

Phase Control Thyristors  
Fast Turn-off Thyristors  
High Frequency Thyristors  
Bi-directional Control Thyristors  
Rectifier Diodes  
Fast Recovery Diodes  
Reversely Switching Dynistors  
Pulse Power Devices  
Outline  
Isolated Capsule Power Modules

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Power Component Distribution  
Diamond Electronics Limited





### Features

- Amplifying gates
- International standard cases
- Hermetic metal cases with ceramic insulators
- Capsule packages for double sided cooling

### Typical Applications

- High power industrial and power transmission
- DC and AC motor control
- Controlled rectifiers
- Soft starters for induction motors
- AC controllers

Type	$V_{DRM}/V_{RRM}$	$I_{T(AV)}$	$I_{TSM}$	$I_{GT}$	$V_{GT}$	$V_{TM}/I_{TM}$	$V_{TO}$	$r_T$	$R_{th(j-c)}$	$R_{th(c-hs)}$	$T_{jm}$	Mounting Force	Outline
		$T_c 85^\circ\text{C}$	10ms	25°C		125°C							
	V	A	kA	mA	V	V/A	V	m.ohm	°C/W	°C/W	°C	kN	
Y24KPA	200-600	440	8	30-200	0.8-2.0	1.11/1000	0.75	0.36	0.080	0.020	125	3.3-5.5	1
Y30KPA	200-600	690	12	35-250	0.8-2.5	1.23/1500	0.73	0.33	0.045	0.010	125	5.3-10	2
Y38KPA	200-600	1030	18	35-300	0.8-2.5	1.10/2000	0.76	0.14	0.035	0.008	125	10-20	3
Y50KPA	200-600	1710	30	40-300	0.8-3.0	1.05/3000	0.75	0.10	0.020	0.005	125	19-26	4
Y24KPC	400-1000	360	6.3	30-200	0.8-2.0	1.29/770	0.75	0.70	0.080	0.020	125	3.3-5.5	1
Y30KPC	400-1000	690	9.1	35-250	0.8-2.5	1.24/1550	0.7	0.35	0.045	0.010	125	5.3-10	2
Y35KPC	400-1000	740	11	35-250	0.8-2.5	1.40/1500	0.80	0.40	0.035	0.008	125	10-20	8
Y38KPC	400-1000	860	15	35-300	0.8-2.5	1.24/1800	0.81	0.24	0.035	0.008	125	10-20	8
Y40KPC	400-1000	930	15	35-300	0.8-2.5	1.57/2400	0.85	0.30	0.028	0.0075	125	15-20	9
Y45KPC	400-1000	1080	20	40-300	0.8-3.0	1.63/3000	0.88	0.25	0.024	0.006	125	18-25	10
Y50KPC	400-1000	1500	29	40-300	0.8-3.0	1.20/2550	0.89	0.12	0.020	0.005	125	19-26	11
Y60KPC	400-1000	1720	33	40-300	0.8-3.0	1.43/4000	0.95	0.12	0.016	0.004	125	21-30	13
Y70KPC	400-1000	2530	38	40-300	0.8-3.0	1.22/5000	0.82	0.08	0.012	0.0035	125	30-40	16
Y76KPC	400-1000	3030	60	40-300	0.8-3.0	1.17/5000	0.86	0.062	0.010	0.003	125	35-47	17
Y89KPC	400-1000	3920	66	40-300	0.8-3.0	1.18/5000	0.88	0.06	0.007	0.002	125	63-84	19
Y100KPC	400-1000	5160	74	40-300	0.8-3.0	1.18/6000	0.85	0.055	0.005	0.0015	125	81-108	20
Y24KPE	1100-1800	340	5	30-200	0.8-2.0	1.22/500	0.82	0.79	0.080	0.020	125	3.3-5.5	1
Y30KPE	1100-1800	570	8.3	35-250	0.8-2.5	1.65/1550	0.83	0.53	0.045	0.010	125	5.3-10	2
Y38KPE	1100-1800	830	14	35-300	0.8-2.5	1.28/1700	0.82	0.27	0.035	0.008	125	10-20	8
Y40KPE	1100-1800	860	12	40-300	0.8-3.0	1.75/2400	0.91	0.35	0.028	0.0075	125	15-20	9
Y45KPE	1100-1800	1010	13	40-300	0.8-3.0	1.80/3000	0.93	0.29	0.024	0.006	125	18-25	10
Y50KPE	1100-2000	1320	24	40-300	0.8-3.0	1.38/2550	0.87	0.20	0.020	0.0050	125	19-26	11

Type	$V_{DRM}/V_{RRM}$	$I_{T(AV)}$	$I_{TSM}$	$I_{GT}$	$V_{GT}$	$V_{TM}/I_{TM}$	$V_{TO}$	$r_T$	$R_{th(j-c)}$	$R_{th(c-hs)}$	$T_{jm}$	Mounting Force	Outline
		$T_c 85^\circ\text{C}$	10ms	25°C		125°C							
	V	A	kA	mA	V	V/A	V	m.ohm	°C/W	°C/W	°C	kN	
Y55KPE	1100-1800	1410	26	40-300	0.8-3.0	1.49/3000	0.95	0.18	0.018	0.004	125	21-30	12
Y60KPE	1100-1800	1590	30	40-300	0.8-3.0	1.58/4000	0.98	0.15	0.016	0.004	125	21-30	13
Y65KPE	1100-1800	1980	45	40-300	0.8-3.0	1.32/3220	0.87	0.14	0.013	0.0035	125	27-34	15
Y70KPE	1100-1800	2160	38	40-300	0.8-3.0	1.50/5000	0.80	0.14	0.012	0.003	125	30-40	16
Y76KPE	1100-1800	2760	60	40-300	0.8-3.0	1.29/5000	0.84	0.09	0.010	0.0030	125	35-47	17
Y40KPH	1900-3000	600	10	40-300	0.8-3.0	2.37/1500	1.20	0.78	0.028	0.0075	125	15-20	9
Y50KPH	1900-3000	1060	23	40-300	0.8-3.0	1.87/2550	1.03	0.33	0.020	0.0050	125	19-26	11
Y55KPH	1900-3000	1240	18	40-300	0.8-3.0	1.78/3000	0.97	0.27	0.018	0.004	125	21-30	12
Y60KPH	1900-3000	1450	23.6	40-300	0.8-3.0	1.61/3000	0.98	0.21	0.016	0.004	125	21-30	13
Y70KPH	1900-3000	1760	28	40-300	0.8-3.0	1.83/4000	1.07	0.19	0.012	0.0035	125	30-40	16
Y76KPH	1900-3000	2190	33	40-300	0.8-3.0	1.44/3000	0.95	0.163	0.010	0.0030	125	35-47	17
Y38KPJ	3100-4200	420	7	35-300	0.8-2.5	2.83/1100	1.18	1.50	0.035	0.0080	125	10-20	8
Y50KPJ	3100-4200	850	15	40-300	0.8-3.0	2.18/1830	1.14	0.57	0.020	0.0050	125	19-26	11
Y65KPJ	3100-4200	1330	25	40-300	0.8-3.0	2.30/3220	1.17	0.35	0.013	0.0035	125	27-34	15
Y76KPJ	3100-4200	1850	25	40-300	0.8-3.0	1.82/3000	1.15	0.222	0.010	0.0030	125	35-47	17
Y100KPJ	3100-4200	3920	60	50-300	0.9-3.5	1.60/6000	0.88	0.12	0.005	0.0015	125	81-108	20
Y38KPM	4300-5200	390	5	35-300	0.8-3.0	2.99/1000	1.21	1.78	0.035	0.0080	125	10-20	8
Y50KPM	4300-5200	760	10	40-300	0.8-3.0	2.58/1830	1.04	0.84	0.020	0.0050	125	19-26	11
Y65KPM	4300-5200	1140	17	40-300	0.8-3.0	2.90/3220	1.23	0.52	0.013	0.0035	125	27-34	15
Y76KPM	4300-5200	1580	37	40-300	0.8-3.0	2.21/3000	1.16	0.35	0.010	0.0030	125	35-47	17
Y89KPM	4300-5200	2380	55	40-300	0.8-3.0	1.71/3000	0.99	0.24	0.007	0.0020	125	63-84	19
Y100KPM	4300-5200	3110	55	40-300	0.8-3.0	1.59/3000	0.96	0.21	0.005	0.0015	125	81-108	20

Type	$V_{DRM}/V_{RRM}$	$I_{T(AV)}$	$I_{TSM}$	$I_{GT}$	$V_{GT}$	$V_{TM}/I_{TM}$	$V_{TO}$	$r_T$	$R_{th(j-c)}$	$R_{th(c-hs)}$	$T_{jm}$	Mounting Force	Outline
		$T_c 70^\circ\text{C}$	10ms	25°C		125°C							
	V	A	kA	mA	V	V/A	V	m.ohm	°C/W	°C/W	°C	kN	
H38KPN	4500-5500	400	4.5	30-300	0.8-3.0	2.80/1000	1.08	1.92	0.045	0.0080	125	10-20	23
H38KPN	4500-5500	440	4.5	30-300	0.8-3.0	2.80/1000	1.08	1.92	0.035	0.0080	125	10-20	8
H50KPN	4500-5500	850	12	30-300	0.8-3.0	1.90/1000	1.07	0.83	0.022	0.0050	125	19-26	24
H50KPN	4500-5500	920	12	30-300	0.8-3.0	1.90/1000	1.07	0.83	0.020	0.0050	125	19-26	11
H76KPN	4500-5500	1800	22	30-300	0.8-3.0	2.20/3000	1.01	0.36	0.011	0.0030	125	35-47	25
H76KPN	4500-5500	1920	22	30-300	0.8-3.0	2.20/3000	1.01	0.36	0.010	0.0030	125	35-47	14
H89KPN	4500-5500	2300	32	30-300	0.8-3.0	1.70/3000	1.03	0.25	0.009	0.0020	125	63-84	28
H100KPN	4500-5500	3500	45	30-300	0.8-3.0	1.54/3000	1.02	0.21	0.0057	0.0015	125	81-108	60
H125KPN	4500-5500	5010	72	30-300	0.8-3.0	1.50/3000	1.02	0.14	0.0040	0.0010	125	110-140	31
H38KPR	5600-6500	350	4.5	40-300	0.8-3.0	3.50/1000	1.25	2.20	0.045	0.0080	125	10-20	23
H38KPR	5600-6500	420	4.5	40-300	0.8-3.0	3.50/1000	1.25	2.20	0.035	0.0080	125	10-20	8
H50KPR	5600-6500	720	11.8	40-300	0.8-3.0	2.40/1000	1.25	1.03	0.022	0.0050	125	19-26	24
H50KPR	5600-6500	830	11.8	40-300	0.8-3.0	2.40/1000	1.25	1.03	0.020	0.0050	125	19-26	11
H65KPR	5600-6500	1000	18	40-300	0.8-3.0	2.35/1500	1.21	0.70	0.014	0.0035	125	27-34	26
H65KPR	5600-6500	1150	18	40-300	0.8-3.0	2.35/1500	1.21	0.70	0.013	0.0035	125	27-34	15
H76KPR	5600-6500	1370	22	40-300	0.8-3.0	2.12/1500	1.2	0.628	0.011	0.0030	125	35-47	25
H76KPR	5600-6500	1500	22	40-300	0.8-3.0	2.12/1500	1.2	0.628	0.010	0.0030	125	35-47	14
H89KPR	5600-6500	1800	32	40-300	0.8-3.0	1.90/1600	1.22	0.42	0.009	0.0020	125	63-84	28
H100KPR	5600-6500	2800	45	40-300	0.8-3.0	2.00/3000	1.14	0.27	0.0057	0.0015	125	81-108	60
H125KPR	5600-6500	4200	71	40-300	0.8-3.0	1.73/3000	1.15	0.17	0.004	0.0010	125	110-140	31
H38KPS	6600-7200	320	4.0	30-300	0.8-3.0	2.90/500	1.13	3.10	0.045	0.0080	125	10-20	23
H50KPS	6600-7200	650	6.4	30-300	0.8-3.0	2.90/1000	1.28	1.32	0.022	0.0050	125	19-26	24



### Features

- Interdigitated amplifying gates
- Fast turn-on and high di/dt
- Low switching losses
- Short turn-off time
- Hermetic metal cases with ceramic insulators

### Typical Applications

- Inductive heating
- Electronic welders
- Self-commutated inverters
- Ac motor speed control
- General power switching applications

Type	V <sub>DRM</sub> /V <sub>RRM</sub>	I <sub>T(AV)</sub>	t <sub>q</sub>	I <sub>TSM</sub>	dv/dt	di/dt *	V <sub>TM</sub> / I <sub>TM</sub>	V <sub>TO</sub>	r <sub>T</sub>	R <sub>th(j-c)</sub>	R <sub>th(c-hs)</sub>	T <sub>jm</sub>	Mounting Force	Outline
		T <sub>c</sub> 55°C	125°C	10ms	125°C		125°C							
	V	A	μs	kA	V/μs	A/μs	V/A	V	m.ohm	°C/W	°C/W	°C	kN	
Y30KKE	800-1600	500	18-50	4.3	500	1200	2.82/1000	1.50	1.32	0.045	0.010	125	5.3-10	2
Y38KKE	800-1800	750	18-50	9.5	500	1200	2.35/1400	1.40	0.68	0.035	0.008	125	10-20	8
Y40KKE	800-1800	1080	18-50	10	500	1200	1.98/1800	1.30	0.38	0.028	0.0075	125	15-20	9
Y45KKE	800-1800	1220	18-50	12	500	1200	2.18/2400	1.32	0.36	0.024	0.006	125	18-25	10
Y50KKE	800-1800	1330	18-50	16	500	1200	2.22/2000	1.56	0.33	0.020	0.005	125	19-26	11
Y55KKE	800-1800	1460	18-50	17	500	1200	2.47/3000	1.51	0.32	0.018	0.004	125	21-30	12
Y60KKE	800-1800	1660	18-50	18	500	1200	2.32/3000	1.48	0.28	0.016	0.004	125	21-30	13
Y65KKE	800-1800	2080	18-50	26.6	500	1200	2.10/3000	1.41	0.23	0.013	0.0035	125	27-34	15
Y70KKE	800-1800	2240	30-60	28	500	1200	2.29/4000	1.45	0.21	0.012	0.003	125	30-40	16
Y76KKE	800-1800	2830	30-60	30.9	500	1200	1.94/4000	1.22	0.18	0.010	0.003	125	35-47	17
Y89KKE	800-1800	4240	30-60	45	500	1200	1.71/5000	1.11	0.12	0.007	0.002	125	63-84	19
Y65KKG	1900-2500	1840	40-80	21	500	1200	2.62/3600	1.43	0.33	0.013	0.0035	125	27-34	15
Y70KKG	1900-2500	2160	40-80	22.7	500	1200	2.40/4000	1.48	0.23	0.012	0.003	125	30-40	16
Y76KKG	1900-2500	2560	40-80	31	500	1200	2.48/5000	1.48	0.20	0.010	0.003	125	35-47	17
Y89KKG	1900-2500	3330	40-110	44	500	1200	2.34/5000	1.29	0.21	0.007	0.002	125	63-84	19
Y100KKG	1900-3000	4450	40-120	62	500	1200	2.25/5000	1.50	0.15	0.005	0.0015	125	81-108	20
Y89KKJ	3100-4000	3050	≤300	35	500	1200	2.20/3000	1.48	0.24	0.007	0.002	125	63-84	19
Y100KKJ	3100-4000	4100	≤300	44	500	1200	2.20/4000	1.4	0.2	0.005	0.0015	125	81-108	20
Y89KKM	4100-4800	2970	≤300	35	500	1200	2.30/3000	1.55	0.25	0.007	0.002	125	63-84	18
Y100KKM	4100-4800	4020	≤300	44	500	1200	2.30/4000	1.5	0.2	0.005	0.0015	125	81-108	21

\*di/dt is the single pulse values



Features

- Fast switching
- Low loss
- Excellent dynamic characteristics

Typical Applications

- Design for inverter supply application

Type	$V_{DRM}$	$V_{RRM}$	$I_{T(AV)}$	$I_{DRM}/I_{RRM}$	$I_{TSM}$	$dv/dt$	$di/dt^*$	$V_{TM}/I_{TM}$	$V_{TO}$	$r_T$	$R_{th(j-c)}$	$R_{th(c-hs)}$	$T_{jm}$	Mounting Force	Outline
			$T_c 70^{\circ}C$	$125^{\circ}C$	10ms	$125^{\circ}C$		$125^{\circ}C$							
	V	V	A	mA	kA	V/ $\mu s$	A/ $\mu s$	V/A	V	m.ohm	$^{\circ}C/W$	$^{\circ}C/W$	$^{\circ}C$	kN	
T76KFG	1800-2500	200-1000	2500	200	30	100	1500	2.20/5000	1.35	0.17	0.010	0.003	125	35-47	17

\*di/dt is the single pulse values



Features

- Interdigitated amplifying gates
- Fast turn-on and high di/dt
- Low switching losses
- Short turn-off time
- Hermetic metal cases with ceramic insulators

Typical Applications

- Inductive heating
- Electronic welders
- Self-commutated inverters
- AC motor speed control
- General power switching applications

Type	$V_{DRM}/V_{RRM}$	$I_{T(AV)}$	$I_T/f$	$t_q$	$I_{TSM}$	$dv/dt$	$di/dt^*$	$V_{TM}/I_{TM}$	$V_{TO}$	$r_T$	$R_{th(j-c)}$	$R_{th(c-hs)}$	$T_{jm}$	Mounting Force	Outline
		$T_c 55^{\circ}C$	$125^{\circ}C$	10ms	$125^{\circ}C$	$125^{\circ}C$		$125^{\circ}C$							
	V	A	$\mu s$	kA	V/ $\mu s$	A/ $\mu s$	V/A	V	m.ohm	$^{\circ}C/W$	$^{\circ}C/W$	$^{\circ}C$	kN	Fig.	
T38KAB	600-900	750	500/12	5-7	8	200	1500	2.47/1400	1.80	0.48	0.035	0.008	125	10-20	8
Y45KAB	600-900	1210	700/10	6-15	9.6	200	1500	2.23/2400	1.44	0.33	0.024	0.006	125	18-25	10
Y30KAC	800-1200	580	200/10	10-20	5.4	200	1500	2.30/1000	1.45	0.85	0.045	0.010	125	5.3-10	2
Y38KAC	800-1200	870	500/10	10-20	9	200	1500	1.97/1200	1.55	0.35	0.035	0.008	125	10-20	8
Y45KAC	800-1200	1110	500/10	10-20	11	200	1500	2.49/2400	1.41	0.45	0.024	0.006	125	18-25	10
Y50KAC	800-1200	1430	600/10	10-20	18	200	1500	1.96/2000	1.32	0.32	0.020	0.005	125	19-26	11
Y55KAC	800-1200	1730	800/8	10-20	17	200	1500	1.96/3000	1.27	0.23	0.018	0.004	125	21-30	12
Y30KAD	1100-1400	480	200/6	12-24	5.8	200	1500	2.46/600	1.67	1.32	0.045	0.010	125	5.3-10	2
Y38KAD	1100-1400	770	600/6	12-24	9.3	200	1500	2.20/1200	1.50	0.58	0.035	0.008	125	10-20	8
Y45KAD	1100-1400	1050	600/6	15-28	12	200	1500	2.42/1800	1.61	0.45	0.024	0.006	125	18-25	10
Y50KAD	1100-1400	1340	800/6	15-28	18	200	1500	2.34/2400	1.60	0.31	0.020	0.005	125	19-26	11
Y55KAD	1100-1400	1520	1000/6	15-28	18	200	1500	2.38/3000	1.63	0.25	0.018	0.004	125	21-30	12

\*di/dt is the single pulse values



### Features

- International standard cases
- Hermetic metal cases with ceramic insulators
- Capsule packages for double sided cooling

### Typical Applications

- High power industrial and power transmission
- DC and AC motor control
- AC controllers
- Soft starters for induction motors

Type	$V_{DRM}/V_{RRM}$	$I_{T(RMS)}$	$I_{TSM}$	$dv/dt$	$di/dt$	$I_{DRM}/I_{RRM}$	$V_{TM}/I_{TM}$	$V_{TO}$	$r_T$	$R_{th(j-c)}$	$R_{th(c-hs)}$	$T_{jm}$	Mounting Force	Outline
		$T_c 85^\circ C$	20ms	$125^\circ C$			$125^\circ C$							
	V	A	kA	V/ $\mu s$	A/ $\mu s$	mA	V/A	V	m.ohm	$^\circ C/W$	$^\circ C/W$	$^\circ C$	kN	
Y30KSE	500-1800	520	5.0	50	50	30	1.78/450	0.85	1.85	0.045	0.010	125	5.3-10	2
Y35KSE	500-1800	750	7.6	50	50	40	1.75/900	0.84	1.01	0.035	0.008	125	10-20	8
Y40KSE	500-1800	930	8.8	50	50	50	1.85/1200	0.78	0.89	0.028	0.0075	125	15-20	9
Y30KSEA	500-1800	500	4.5	50	50	30	1.90/450	0.99	1.80	0.045	0.015	125	5.3-12	57
Y35KSEA	500-1800	730	7.0	50	50	40	1.61/700	0.90	1.02	0.035	0.010	125	10-20	58
Y40KSEA	500-1800	830	7.8	50	50	50	1.85/1000	1.00	0.85	0.030	0.008	125	15-20	59

### Features

- Low forward voltage drop
- Reverse voltage up to 6500 v
- Capsule type metal-ceramic packages for double sided cooling

### Typical Applications

- All purpose high power rectifier diodes
- High power resistance welding equipment
- Non-controllable and half-controllable rectifiers
- Snubber diodes



Type	$V_{RRM}$	$I_{F(AV)}$	$I_{FSM}$	$V_{FM}/I_{FM}$	$I_{RRM}$	$V_{FO}$	$r_f$	$R_{th(j-c)}$	$R_{th(c-hs)}$	$T_{jm}$	Mounting Force	Outline
		$T_c 85^\circ C$	10ms	$T_{jm}$								
	V	A	kA	V/A	mA	V	m.ohm	$^\circ C/W$	$^\circ C/W$	$^\circ C$	kN	Fig.
Y50ZPA	200-400	6770	50	1.10/6400	50	0.727	0.045	0.0135	0.0035	190	19-26	56
Y24ZPB	200-1000	860	8	1.46/1930	16	0.8	0.34	0.080	0.020	190	3.3-5.5	32
Y30ZPB	200-1000	1380	11	1.16/1200	30	0.87	0.24	0.045	0.010	190	5.3-10	33
Y38ZPB	200-1000	1700	18	1.82/4400	40	0.81	0.23	0.035	0.008	190	10-20	39
Y40ZPB	200-1000	2160	19	1.36/3000	50	0.86	0.165	0.028	0.0075	190	15-20	40
Y50ZPB	500-1000	3180	30	1.01/2000	80	0.79	0.11	0.020	0.005	190	19-26	42
Y65ZPB	200-1000	5630	58	0.92/5000	100	0.63	0.058	0.013	0.0035	190	27-34	44
Y76ZPB	200-1000	7460	69	0.89/5000	100	0.69	0.039	0.010	0.003	190	35-47	46
Y24ZPC	1100-2000	560	4.9	2.10/1500	16	0.8	0.86	0.080	0.020	175	3.3-5.5	32
Y30ZPC	1100-2000	1080	9	2.22/3770	30	0.98	0.33	0.045	0.010	175	5.3-10	33
Y35ZPC	1100-2000	1290	15	1.59/1800	40	1.05	0.30	0.035	0.008	175	10-20	39
Y38ZPC	1100-2000	1480	13.9	1.94/3770	40	0.85	0.29	0.032	0.008	175	10-20	39
Y40ZPC	1100-2000	1790	18	1.52/3000	50	0.90	0.204	0.028	0.0075	175	15-20	40
Y50ZPC	1100-2000	2490	25.7	1.57/4500	80	0.89	0.15	0.020	0.005	175	19-26	42
Y60ZPC	1100-2000	3520	34	1.13/4000	120	0.73	0.10	0.016	0.004	175	21-30	43
Y70ZPC	1100-2000	4520	44	1.22/5000	160	0.85	0.073	0.012	0.003	175	30-40	45
Y76ZPC	1100-2000	5220	56.4	1.31/6800	200	0.84	0.069	0.010	0.003	175	35-47	46
Y89ZPC	1100-2000	7090	83	1.01/5000	200	0.68	0.065	0.007	0.002	175	63-84	47
Y100ZPC	1100-2000	8000	94	1.28/6000	250	0.85	0.071	0.005	0.0015	175	81-108	48
Y38ZPD	2100-3000	1150	12	1.41/1500	40	0.88	0.35	0.035	0.010	160	10-20	39
Y50ZPD	2100-3000	2210	23	1.55/4500	80	0.83	0.16	0.020	0.005	160	19-26	42
Y70ZPD	2100-3000	3470	35	1.45/5000	160	0.95	0.10	0.012	0.003	160	30-40	45
Y89ZPD	2100-3000	5210	62	1.29/5000	200	0.80	0.098	0.007	0.002	160	63-84	47





Type	$V_{RRM}$	$I_{F(AV)}$	$I_{FSM}$	$V_{FM}/I_{FM}$	$I_{RRM}$	$V_{FO}$	$r_f$	$R_{th(j-c)}$	$R_{th(c-hs)}$	$T_{jm}$	Mounting Force	Outline
		$T_c 85^\circ\text{C}$	10ms	$T_{jm}$								
	V	A	kA	V/A	mA	V	m.ohm	$^\circ\text{C/W}$	$^\circ\text{C/W}$	$^\circ\text{C}$	kN	
Y50ZPE	3100-4200	1770	18	1.97/3800	80	0.98	0.26	0.020	0.005	160	19-26	42
Y70ZPE	3100-4200	3090	35	1.48/4000	160	0.88	0.15	0.012	0.003	160	30-40	45
Y76ZPE	3100-4200	3500	41	1.78/6000	200	0.95	0.138	0.010	0.003	160	35-47	46
Y100ZPE	3100-4200	6490	80	1.44/6000	250	0.92	0.087	0.005	0.0015	160	81-108	48
Y38ZPG	4300-5000	920	6	1.44/1000	50	0.99	0.45	0.035	0.008	150	10-20	39
Y50ZPG	4300-5000	1640	14	1.36/1500	100	0.98	0.25	0.020	0.005	150	19-26	42
Y65ZPG	4300-5000	2890	26	1.23/3000	150	0.86	0.122	0.013	0.0035	150	27-34	44
Y100ZPG	4300-5000	5650	58	1.41/5000	300	0.91	0.10	0.005	0.0015	150	81-108	48
T38ZPR	5600-6500	500*	9.5	2.20/1000	50	0.89	1.05	0.045	0.008	150	10-20	50
T50ZPR	5600-6500	970*	16.5	2.15/1500	100	0.91	0.60	0.022	0.005	150	19-26	51
T65ZPR	5600-6500	1510*	26	1.85/3000	200	0.92	0.39	0.014	0.0035	150	27-34	52
T76ZPR	5600-6500	2000*	35	1.80/3000	300	0.94	0.27	0.011	0.003	150	35-47	53

note: "\*" is the current at  $T_c=100^\circ\text{C}$

### Features

- Small recovered charge
- Soft recovery
- Up to 5000 v reverse voltage
- Capsule type metal-ceramic packages for double sided cooling

### Typical Applications

- Inverse diodes for power transistors, GTO thyristors
- AC motor control
- Snubber diodes and free-wheeling diodes
- UPS

Type	$V_{RRM}$	$I_{F(AV)}$	$I_{FSM}$	$I_{RRM}$	$t_{rr}$	$Q_{rr}$	$V_{FM}/I_{FM}$	$V_{FO}$	$r_f$	$R_{th(j-c)}$	$R_{th(c-hs)}$	$T_{jm}$	Mounting Force	Outline
		$T_c 70^\circ\text{C}$	10ms		$125^\circ\text{C}$		$125^\circ\text{C}$							
	V	A	kA	mA	$\mu\text{s}$	$\mu\text{C}$	V/A	V	m.ohm	$^\circ\text{C/W}$	$^\circ\text{C/W}$	$^\circ\text{C}$	kN	
Y24ZKB	200-1000	390	5	16	2	50	1.53/600	1.10	0.72	0.080	0.020	125	3.3-5.5	32
Y30ZKB	200-1000	690	10	30	3	90	1.60/1200	1.17	0.36	0.045	0.010	125	5.3-10	33
Y38ZKB	200-1000	850	13	40	3	90	1.97/2400	1.15	0.34	0.035	0.008	125	10-20	39
Y50ZKB	200-1000	1470	22	80	4	150	1.75/3000	1.15	0.20	0.020	0.005	125	19-26	42
Y24ZKC	1100-2000	340	5.4	16	2	70	1.87/600	1.48	0.65	0.080	0.020	125	3.3-5.5	32
Y30ZKC	1100-2000	630	7.5	30	3	90	1.80/1200	1.30	0.42	0.045	0.010	125	5.3-10	33
Y38ZKC	1100-2000	780	10	40	3	130	2.20/2400	1.31	0.37	0.035	0.008	125	10-20	39
Y50ZKC	1100-2000	1330	19	80	6	250	2.00/3000	1.37	0.21	0.020	0.005	125	19-26	42
Y60ZKC	1100-2000	1830	25	100	7	550	1.96/5000	1.16	0.16	0.016	0.004	125	21-30	43
Y70ZKC	1100-2000	2340	31	150	7	1000	1.85/5000	1.10	0.15	0.012	0.003	125	30-40	45
Y76ZKC	1100-2000	3180	44	200	7	1300	1.45/5000	0.95	0.10	0.010	0.003	125	35-47	46
Y38ZKD	2100-3000	630	8.5	40	4	150	2.23/1000	1.78	0.45	0.035	0.008	125	10-20	39
Y50ZKD	2100-3000	1110	16	80	7	650	1.99/1500	1.40	0.39	0.020	0.005	125	19-26	42
Y60ZKD	2100-3000	1340	20	100	8	1010	2.18/2000	1.58	0.30	0.016	0.004	125	21-30	43
Y70ZKD	2100-3000	1670	25	180	10	1500	2.42/3000	1.55	0.29	0.012	0.003	125	30-40	45
Y24ZKG	4000-5000	210	2.7	20	4	100	3.18/500	1.36	3.63	0.080	0.020	125	3.3-5.5	32
Y38ZKG	4000-5000	480	6.5	50	6	960	3.07/1000	1.89	1.18	0.035	0.008	125	10-20	39
Y50ZKG	4000-5000	940	14	100	9	1800	2.50/1500	1.73	0.51	0.020	0.005	125	19-26	42
Y76ZKG	4000-5000	1940	27	250	12	2200	2.40/3000	1.65	0.25	0.010	0.003	125	35-47	46

Type	Repetitive peak off-state voltage	Repetitive peak sine current pulse	Surge on-state current	Peak forward voltage	Critical rate of rise of on-state current	Critical rate of rise of off-state voltage	Trigger current	Trigger current duration	Turn-off time	Mounting force	Outline
	$V_{DRM}$ kV	$I_p$ (50 $\mu$ s) kA	$I_{TSM}$ (10ms) kA	$V_{TM}(@I_p)$ V	$di/dt$ kA/ $\mu$ s	$dv/dt$ kV/ $\mu$ s	$I_{RT}$ kA	$T_T$ $\mu$ s	$t_q$ $\mu$ s	F kN	
Y20DSC	1.0	10	1	15	3.0	0.6	0.05	1.0~2.0	15	3.0~4.0	32
Y20DSE	1.8	10	1	20	2.5	0.6	0.05	1.5~2.5	100	3.0~4.0	32
Y38DSC	1.2	50	5	20	15	0.8	0.25	1.0~2.0	25	10~20	34
Y38DSE	1.8	50	5	20	15	0.8	0.25	1.5~2.5	60	10~20	34
Y38DSF	2.5	50	5	20	13	0.8	0.25	1.5~2.5	80	10~20	34
Y50DSE	2.0	100	10	20	25	0.8	0.5	1.5~2.5	120	19~26	35
Y50DSF	2.5	100	10	20	25	0.8	0.5	1.5~2.5	150	19~26	35
Y65DSE	2.0	180	18	20	40	0.8	1.1	1.5~3.0	120	27~34	44
Y65DSH	3.0	180	18	20	40	1.0	1.1	1.5~3.0	230	27~34	44
Y76DSE	2.0	250	25	20	60	0.8	1.5	1.5~3.0	150	35~47	46
Y76DSH	3.0	250	25	25	60	1.0	1.5	1.5~3.0	250	35~47	46

### Using fields

The pulse power technologies are stimulated in many modern high technologies fields such as:

- Generator for power exciter laser pumping
- Waste water treatment by power electric discharge
- Pulse energization of electrostatic precipitator
- Power magnetron modulation

### Structure and principle

Fig 1 is the RSD-Based Pulse Power Generator, consists of Main Circuit and Trigger Circuit. The Main Circuit consists of a main capacitance C, a saturable core choke L and load  $R_L$ . The Trigger Circuit consists of a switch K, capacitance  $C_T$  and  $R_T$ .

RSD is power thyristor-type device especially designed for Pulsed Power Technology. The main advantages of RSD are very low switching losses due to uniform switching over the semiconductor structure area, very high  $di/dt$  capability, zero delay time between triggering and main current pulses. These peculiarities lead to very high switching capability of RSD and to high reliability of power systems consisting of many RSD connected in parallel and in series.

Fig.1 RSD-Based Pulse Power Generator

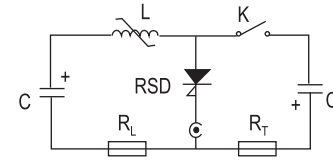


Fig.2 Equivalent structure of RSD

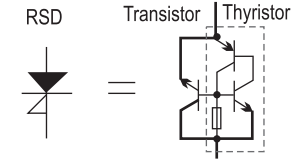


Fig 2 is the equivalent structure of RSD. When the switch K in Fig 1 is closed, the RSD is triggered by short (1~3 $\mu$ s) reverse current from the Trigger circuit. During this reverse, the short reverse current pulse passes through the semiconductor structure forming the thin electron-hole plasma layer in the collector junction plane. Then the applied voltage polarity returns to the initial state where the plasma layer uniformly distributes the gate electron, which injects majority carriers into the base layers of the RSD's structure. When properly triggered, the RSD can switch very high current. Fig.3 is a typical voltage and current waves on RSD switching.

Fig.3 Voltage and current waves on RSD switching

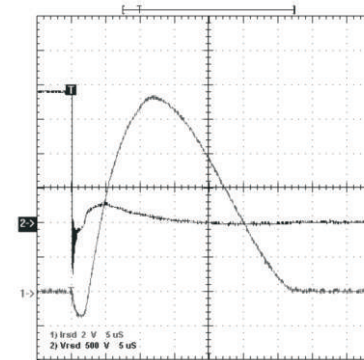


Fig.4 30KV RSD STACK



excellent performance

In comparison with traditional switches -based pulse powers, the RSD pulser is more reliable because of much better switching characteristics. Because of the high di/dt capability of RSDs, the pulse width of the low voltage pulses can be relatively short (3~5μs ) and the number of magnetic cells required for pulse compression, in this case, is less than in SCR pulsers, thus providing increased efficiency. The next is RSD's excellent performance:

- high power
- easy series or parallel connections
- high reliability
- no warm-up
- long life
- low price

Features

- Interdigitated amplifying gates
- Fast turn-on and high di/dt
- Low switching losses
- Short turn-off time
- High pulse power current

Typical Applications

- environment protection facility
- laser facility
- electromagnetic drive

Type	$I_{PK}$	$V_{DRM}$	$V_{RRM}$	di/dt ability		dv/dt	$T_{jm}$	Mounting Force	Outline
	tp:0.3~2.0ms			di/dt	$I_{PK}$				
	kA	V	V	A/μs	kA	V/μs	°C	kN	Fig.
Voltage to 4500V									
T100KMJ	140	4000	4000	1500	140	1000	90	81~108	20
H100KMM	150	4200	4200	2000	150	1000	100	81~108	21
H125KMM	200	4500	4500	2000	200	1000	100	110~140	22
Voltage to 5200V									
H125KMN	150	5000	5000	1500	150	1000	100	110~140	22

Pulse Power Assembly

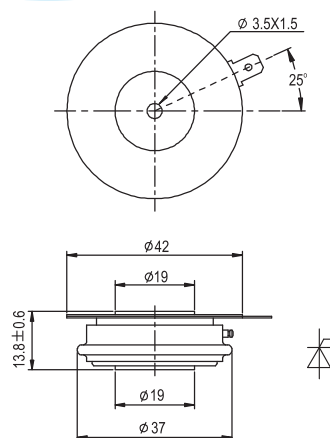
Pulse power semiconductor devices and assembly, 10-300kA, 10-40kV, have advantages with large surge current, fast turn-on, high di/dt, etc. As per different application at customers, special pulse thyristor, super fast semiconductor devices can be designed in assembly structures which could provide whole electrical functions including trigger, protection etc. Special pulse assembly solution can be provided according to customers application conditions and requirements.

Application: environment protection facility, laser facility, electromagnetic drive, etc.



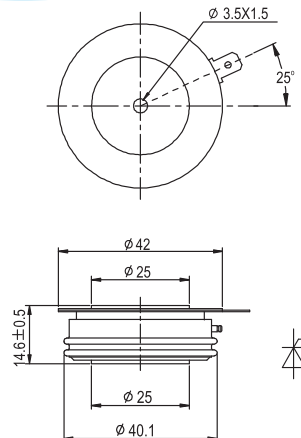


**1.KT19aT**



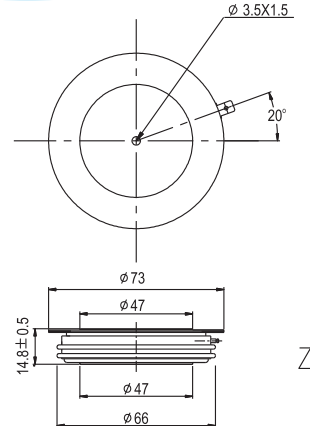
Case Style	Weight	Mounting Force
KT19aT	0.06kg	3.3~5.5kN

**2.KT25aT**



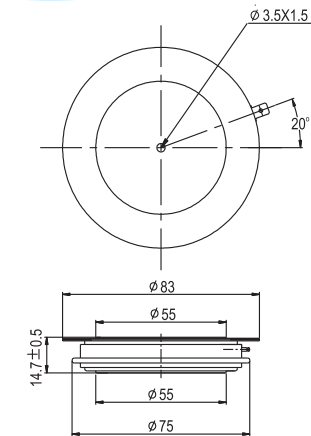
Case Style	Weight	Mounting Force
KT25aT	0.08kg	5.3~10kN

**5.KT50aT**



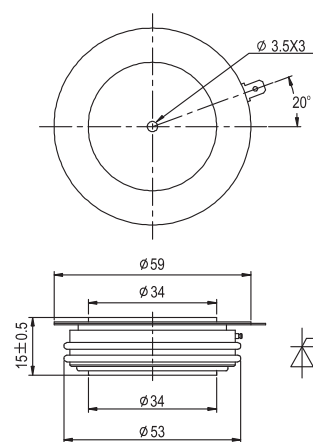
Case Style	Weight	Mounting Force
KT50aT	0.29kg	19~26kN

**6.KT54aT55**



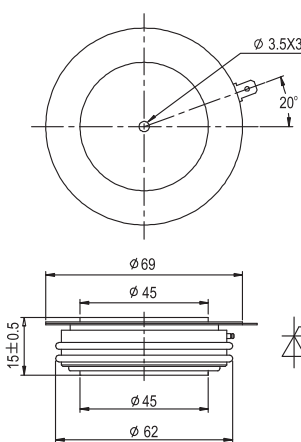
Case Style	Weight	Mounting Force
KT54aT55	0.35kg	21~30kN

**3.KT33aT**



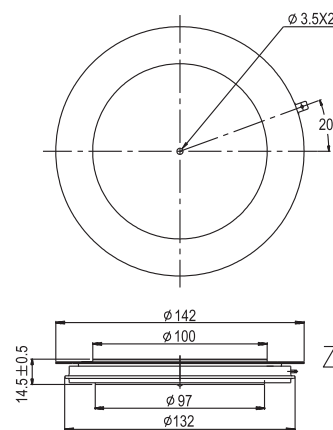
Case Style	Weight	Mounting Force
KT33aT	0.15kg	10~20kN

**4.KT44aT**



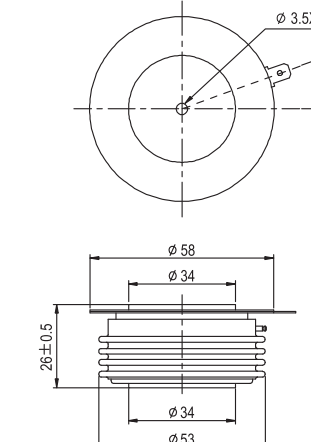
Case Style	Weight	Mounting Force
KT44aT	0.17kg	18~25kN

**7.KT100aT**



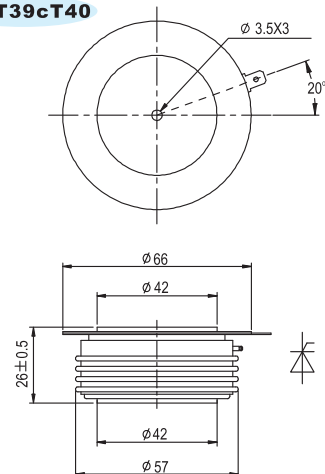
Case Style	Weight	Mounting Force
KT100aT	1.14kg	81~108kN

**8.KT33cT**



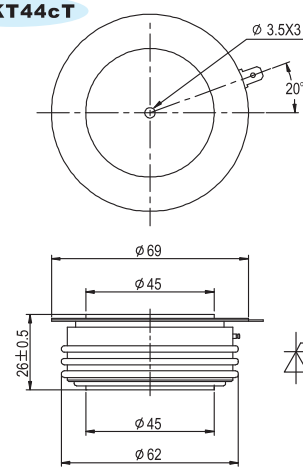
Case Style	Weight	Mounting Force
KT33cT	0.24kg	10~20kN

9.KT39cT40



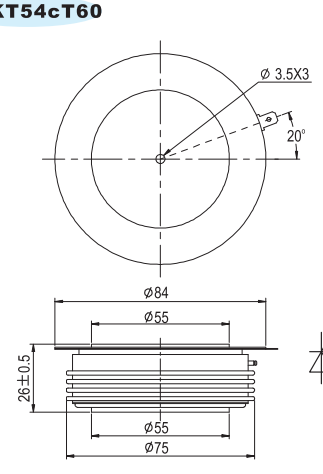
Case Style	Weight	Mounting Force
KT39cT40	0.32kg	15~20kN

10.KT44cT



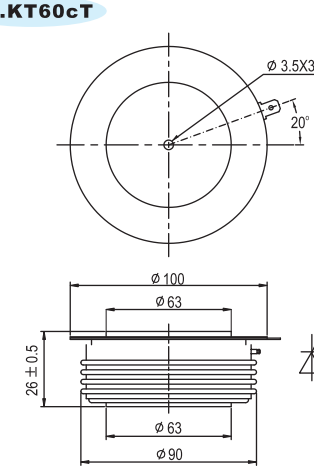
Case Style	Weight	Mounting Force
KT44cT	0.38kg	18~25kN

13.KT54cT60



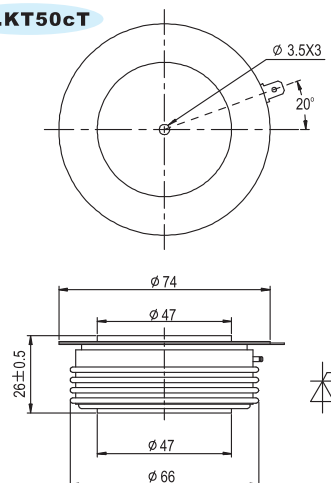
Case Style	Weight	Mounting Force
KT54cT60	0.64kg	21~30kN

14.KT60cT



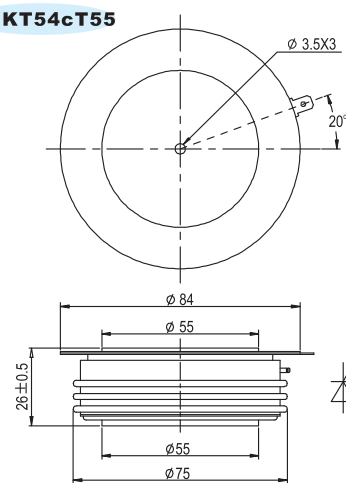
Case Style	Weight	Mounting Force
KT60cT	0.88kg	35~47kN

11.KT50cT



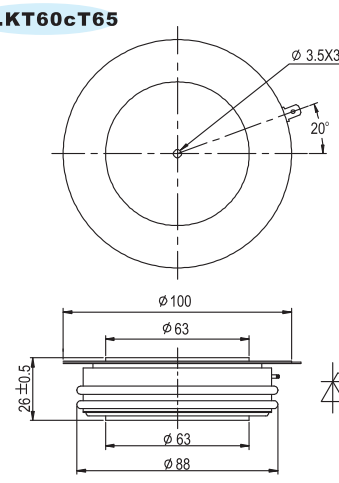
Case Style	Weight	Mounting Force
KT50cT	0.44kg	19~26kN

12.KT54cT55



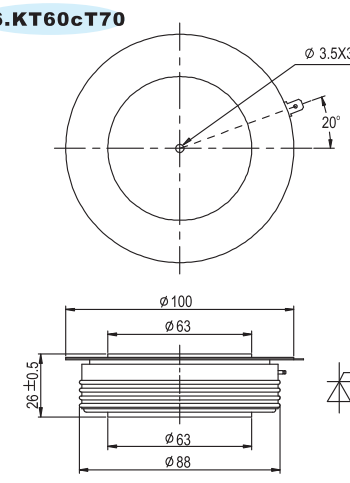
Case Style	Weight	Mounting Force
KT54cT55	0.59kg	21~30kN

15.KT60cT65



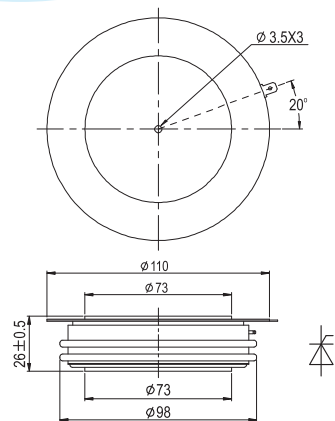
Case Style	Weight	Mounting Force
KT60cT65	0.82kg	27~34kN

16.KT60cT70



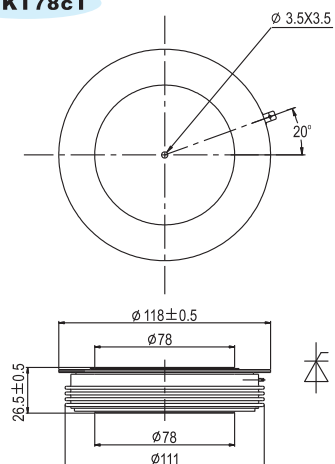
Case Style	Weight	Mounting Force
KT60cT70	0.88kg	30~40kN

**17.KT73cT**



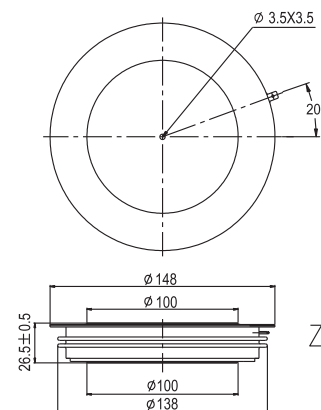
Case Style	Weight	Mounting Force
KT73cT	1.1kg	35~47kN

**18.KT78cT**



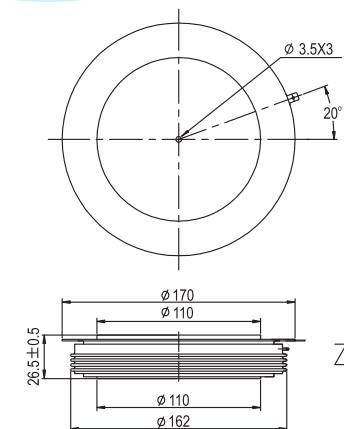
Case Style	Weight	Mounting Force
KT78cT	1.39Kg	63-84kN

**21.KT100cTY**



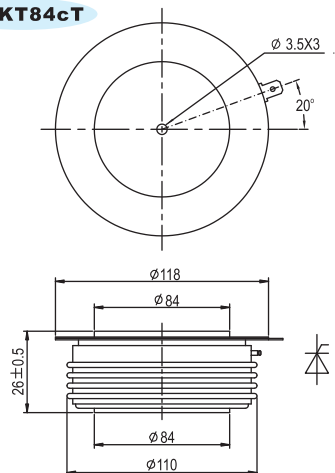
Case Style	Weight	Mounting Force
KT100cTY	1.88Kg	81-108kN

**22.KT110cT**



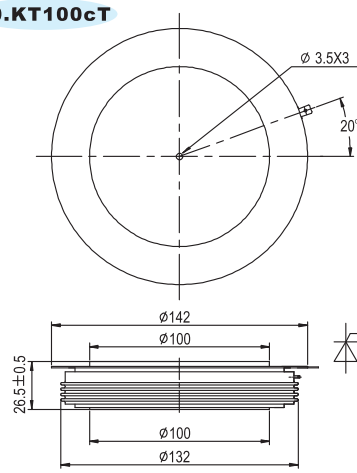
Case Style	Weight	Mounting Force
KT110cT	2.62Kg	110-140kN

**19.KT84cT**



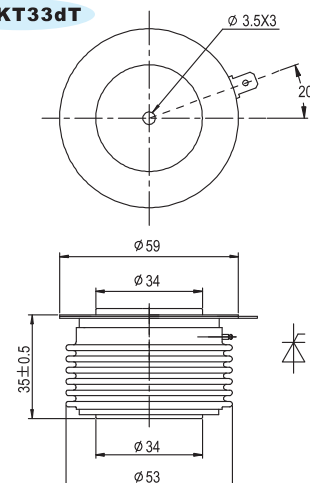
Case Style	Weight	Mounting Force
KT84cT	1.39kg	63-84kN

**20.KT100cT**



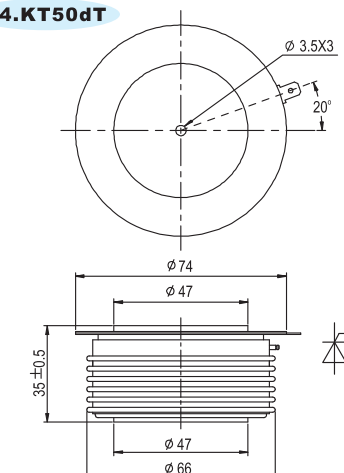
Case Style	Weight	Mounting Force
KT100cT	2Kg	81-108kN

**23.KT33dT**

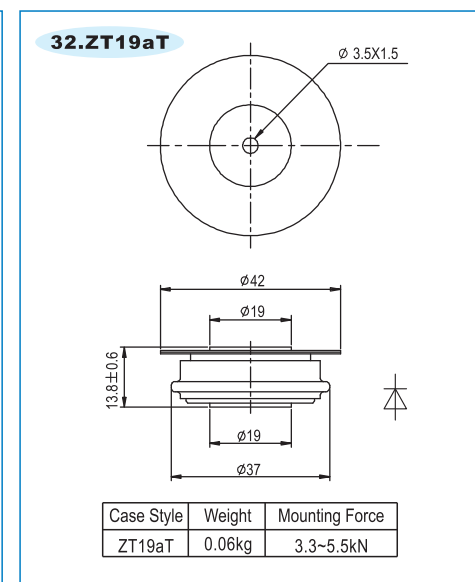
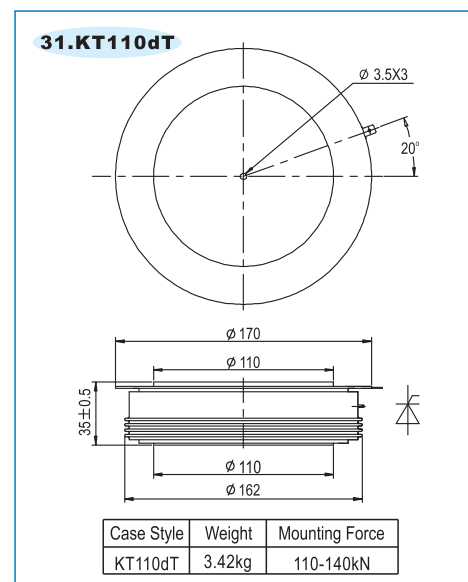
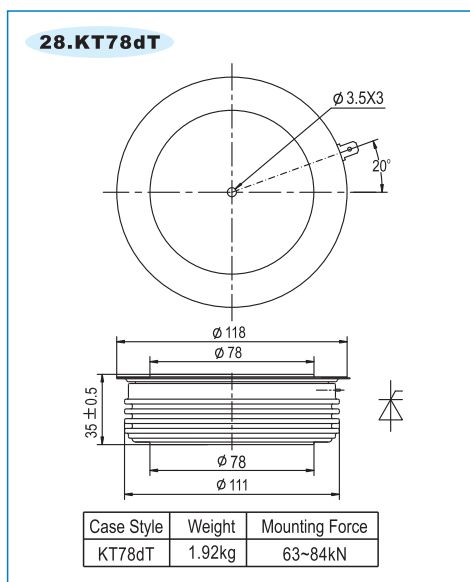
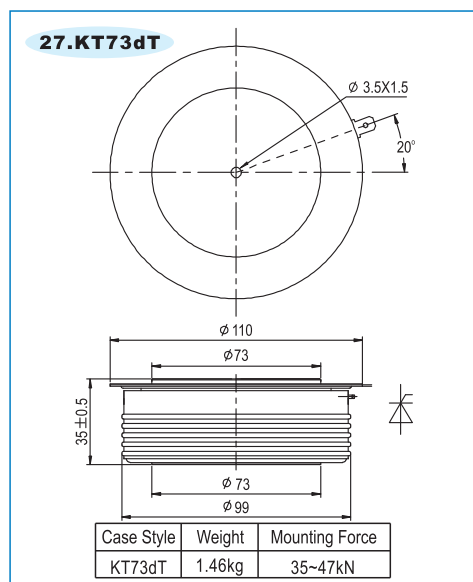
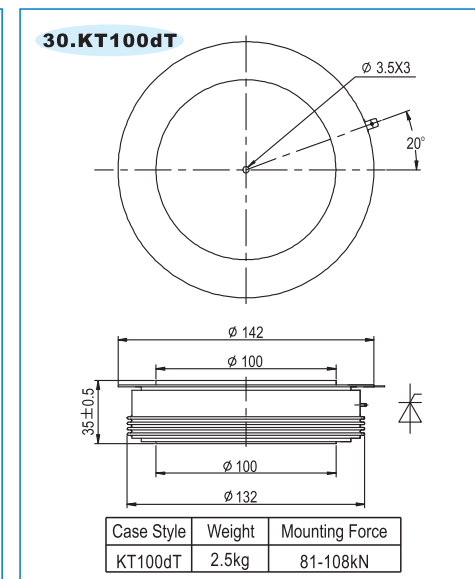
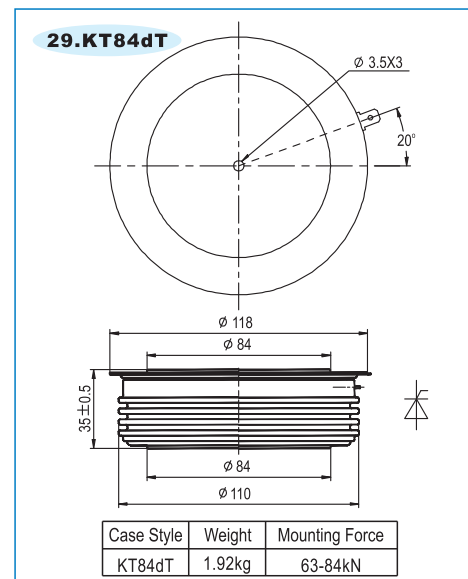
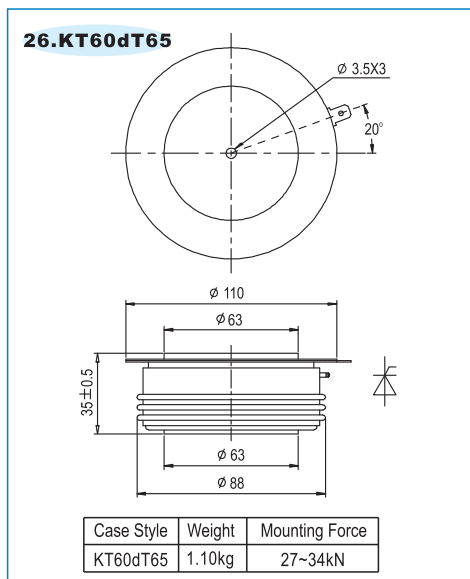
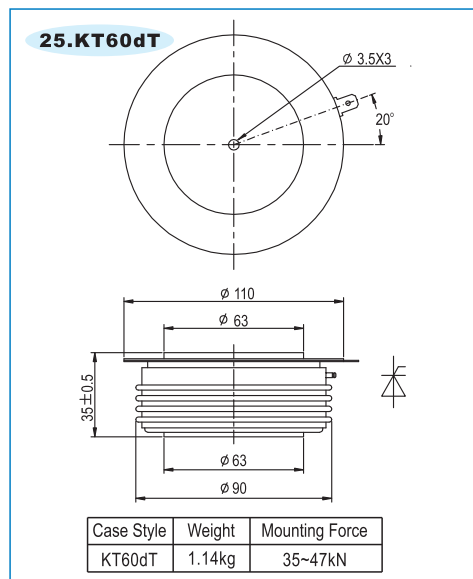


Case Style	Weight	Mounting Force
KT33dT	0.30kg	10~20kN

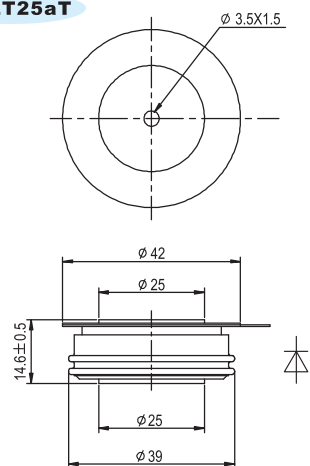
**24.KT50dT**



Case Style	Weight	Mounting Force
KT50dT	0.56kg	19~26kN

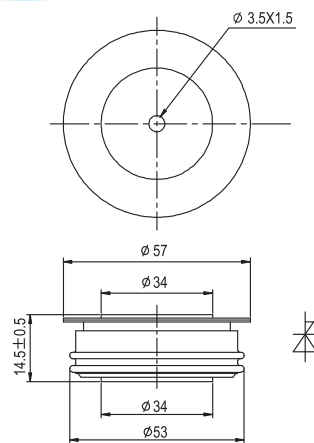


**33.ZT25aT**



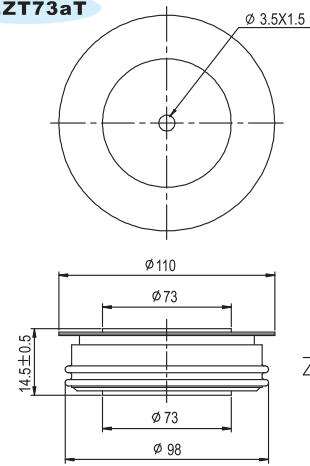
Case Style	Weight	Mounting Force
ZT25aT	0.08kg	5.3~10kN

**34.ZT33aT**



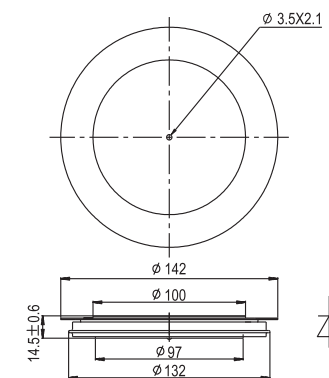
Case Style	Weight	Mounting Force
ZT33aT	0.15kg	10~20kN

**37.ZT73aT**



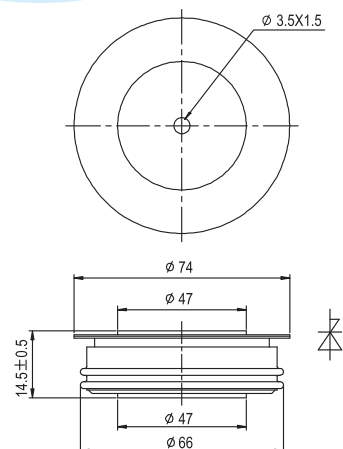
Case Style	Weight	Mounting Force
ZT73aT	0.98kg	35~47kN

**38.ZT100aT**



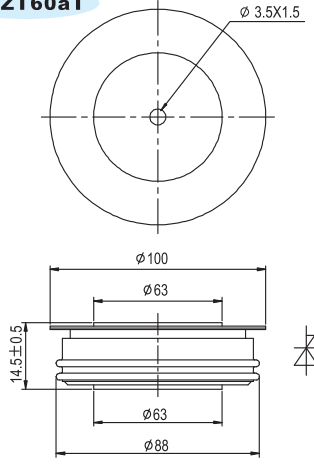
Case Style	Weight	Mounting Force
ZT100aT	1.14kg	81~108kN

**35.ZT50aT**



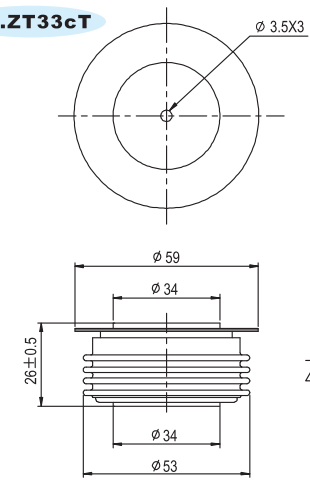
Case Style	Weight	Mounting Force
ZT50aT	0.29kg	19~26kN

**36.ZT60aT**



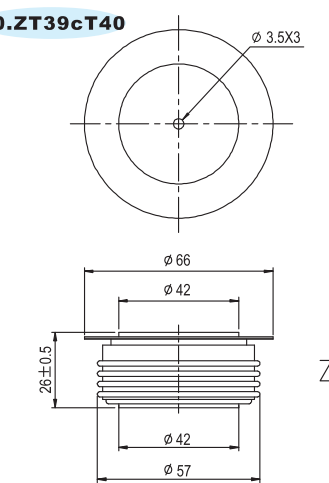
Case Style	Weight	Mounting Force
ZT60aT	0.63kg	27~34kN

**39.ZT33cT**



Case Style	Weight	Mounting Force
ZT33cT	0.24kg	10~20kN

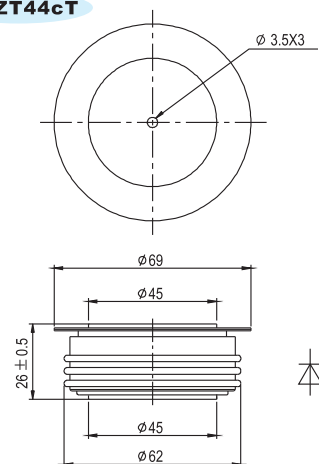
**40.ZT39cT40**



Case Style	Weight	Mounting Force
ZT39cT40	0.32kg	15~20kN

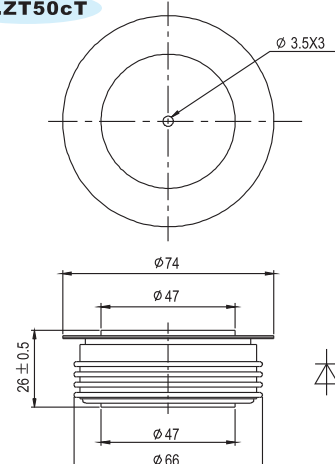


**41.ZT44cT**



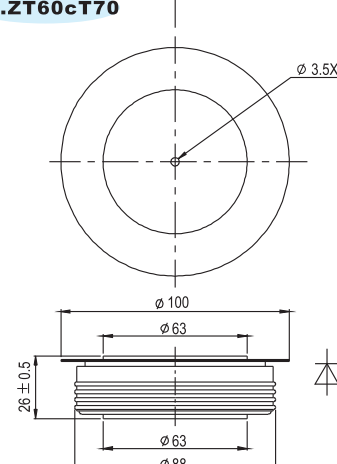
Case Style	Weight	Mounting Force
ZT44cT	0.38kg	18~25kN

**42.ZT50cT**



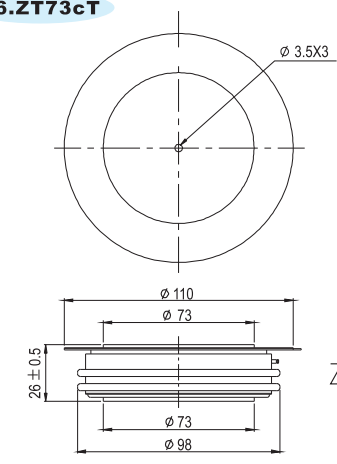
Case Style	Weight	Mounting Force
ZT50cT	0.44kg	19~26kN

**45.ZT60cT70**



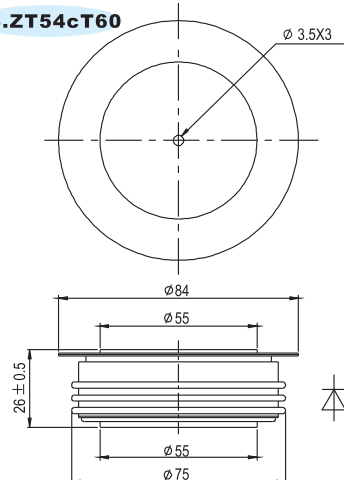
Case Style	Weight	Mounting Force
ZT60cT70	0.88kg	30~40kN

**46.ZT73cT**



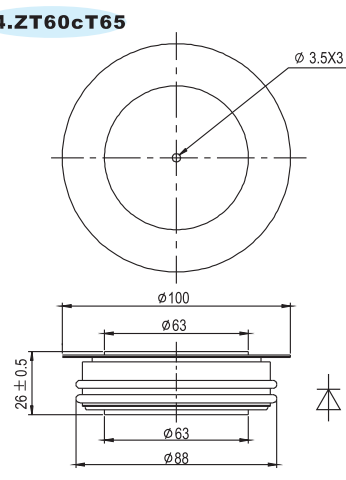
Case Style	Weight	Mounting Force
ZT73cT	1.1kg	35~47kN

**43.ZT54cT60**



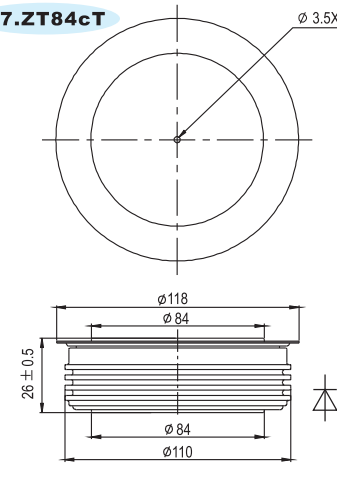
Case Style	Weight	Mounting Force
ZT54cT60	0.64kg	21~30kN

**44.ZT60cT65**



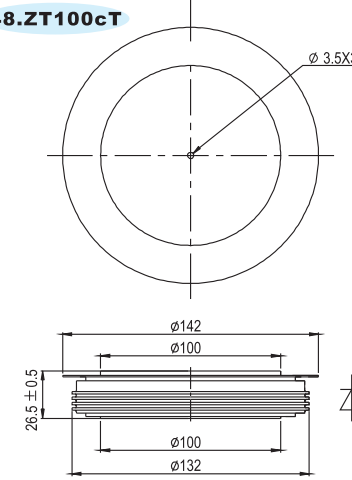
Case Style	Weight	Mounting Force
ZT60cT65	0.82kg	27~34kN

**47.ZT84cT**



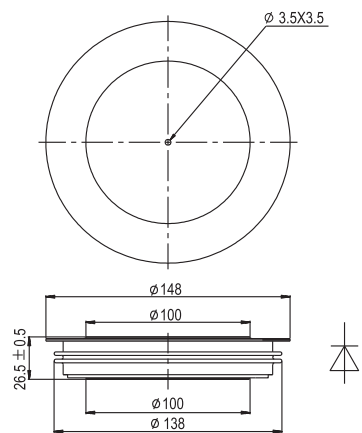
Case Style	Weight	Mounting Force
ZT84cT	1.39kg	63~84kN

**48.ZT100cT**



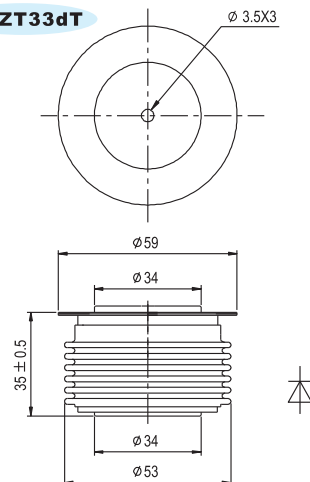
Case Style	Weight	Mounting Force
ZT100cT	2kg	81~108kN

49.ZT100cTY



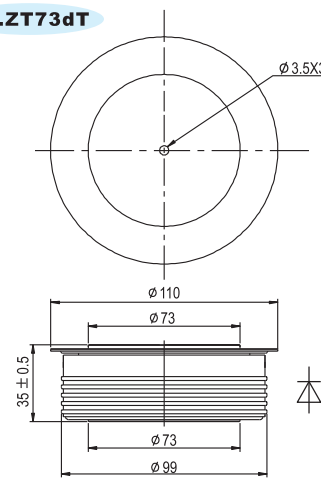
Case Style	Weight	Mounting Force
ZT100cTY	2.02kg	81-108kN

50.ZT33dT



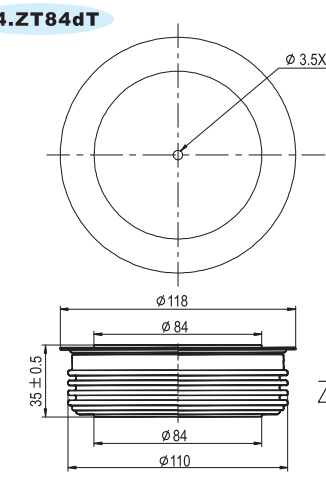
Case Style	Weight	Mounting Force
ZT33dT	0.34kg	10-20kN

53.ZT73dT



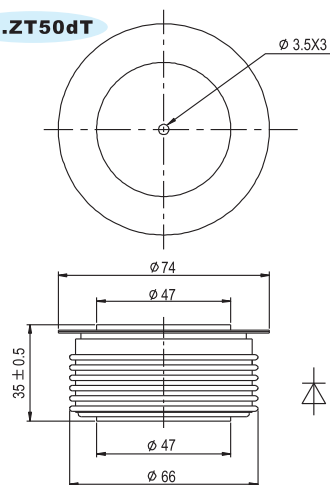
Case Style	Weight	Mounting Force
ZT73dT	1.46kg	35-47kN

54.ZT84dT



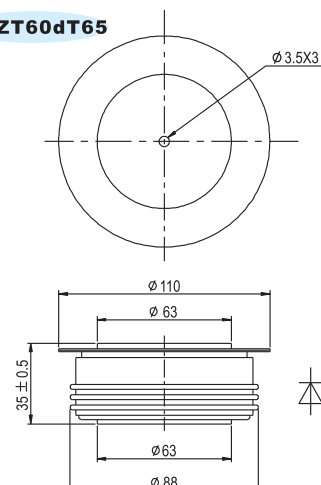
Case Style	Weight	Mounting Force
ZT84dT	1.9kg	63-84kN

51.ZT50dT



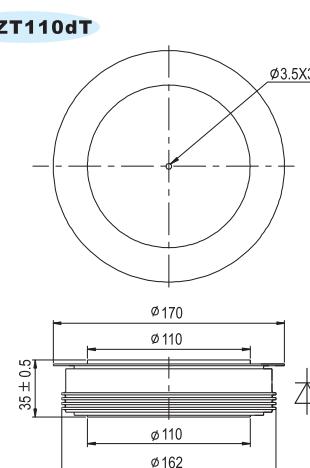
Case Style	Weight	Mounting Force
ZT50dT	0.59kg	19-26kN

52.ZT60dT65



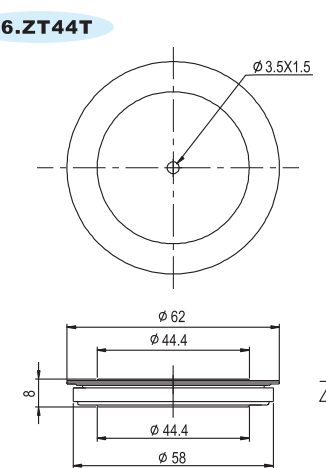
Case Style	Weight	Mounting Force
ZT60dT65	1.10kg	21-30kN

55.ZT110dT



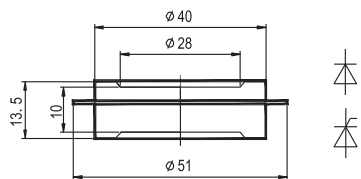
Case Style	Weight	Mounting Force
ZT110dT	3.42kg	110-140kN

56.ZT44T



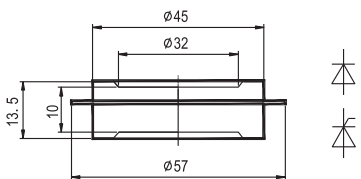
Case Style	Weight	Mounting Force
ZT44T	0.14kg	19-26kN

57.KA28



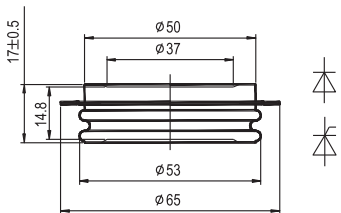
Case Style	Weight	Mounting Force
KA28	0.085kg	5.3~12kN

58.KA32



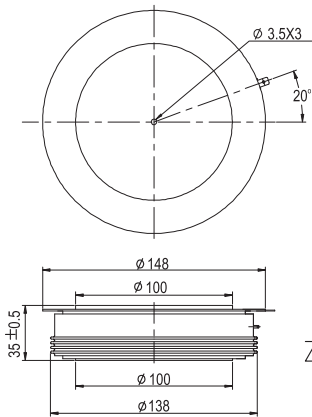
Case Style	Weight	Mounting Force
KA32	0.11kg	10~20kN

59.KA37



Case Style	Weight	Mounting Force
KA37	0.20kg	15~20kN

60.KT100dTY

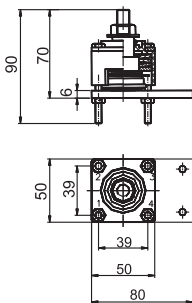


Case Style	Weight	Mounting Force
KT100dTY	2.5kg	81-108kN

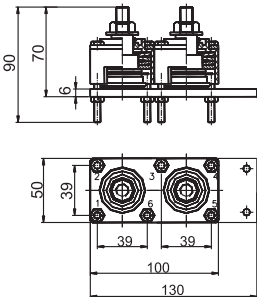
The modules can comprise one or two capsule type devices on a common isolated base-plate, user only requires four fixing screws for mounting to a suitable heatsink.

Type	Number of devices	$I_{TAV}$ @ $T_c 70^\circ C$ A	$V_{DRM}/V_{RRM}$ V	$R_{th(j-c)}$ $^\circ C/W$	$T_{jm}$ $^\circ C$
MP25A-200	1	200	400-1800	0.2	125
MP25B-200	2				
MP25A-250	1	250	400-1800	0.13	125
MP25B-250	2				
MP33A-400	1	400	400-1800	0.09	125
MP33B-400	2				

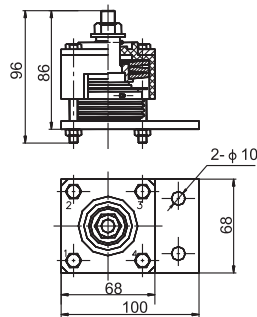
MP25A



MP25B



MP33A



MP33B

