

Thyristor Modules

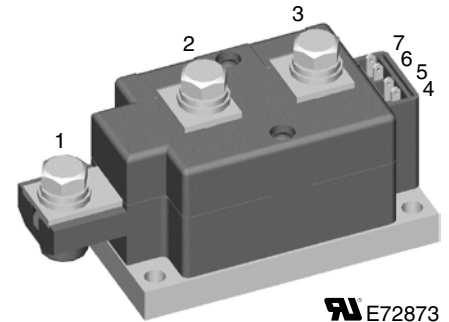
Thyristor/Diode Modules

$$I_{TRMS} = 2x 450 A$$

$$I_{TAVM} = 2x 250 A$$

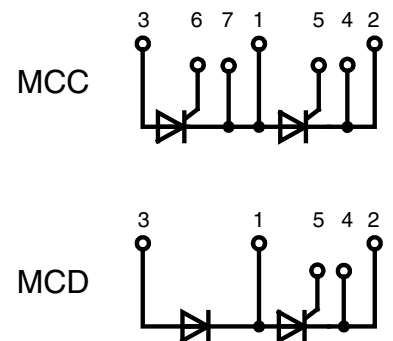
$$V_{RRM} = 1200-1800 V$$

V_{RSM} V_{DSM} V	V_{RRM} V_{DRM} V	Type	
1300	1200	MCC 255-12io1	MCD 255-12io1
1500	1400	MCC 255-14io1	MCD 255-14io1
1700	1600	MCC 255-16io1	MCD 255-16io1
1900	1800	MCC 255-18io1	MCD 255-18io1



Symbol	Conditions	Maximum Ratings		
I_{TRMS}, I_{FRMS} I_{TAVM}, I_{FAVM}	$T_{VJ} = T_{VJM}$ $T_C = 85^\circ C; 180^\circ$ sine	450 250	A A	
I_{TSM}, I_{FSM}	$T_{VJ} = 45^\circ C; V_R = 0$ $t = 10$ ms (50 Hz) $t = 8.3$ ms (60 Hz)	9000 9600	A A	
I^2t	$T_{VJ} = T_{VJM}; V_R = 0$ $t = 10$ ms (50 Hz) $t = 8.3$ ms (60 Hz)	7800 8600	A A	
	$T_{VJ} = 45^\circ C; V_R = 0$ $t = 10$ ms (50 Hz) $t = 8.3$ ms (60 Hz)	405 000 382 000	A^2s A^2s	
	$T_{VJ} = T_{VJM}; V_R = 0$ $t = 10$ ms (50 Hz) $t = 8.3$ ms (60 Hz)	304 000 307 000	A^2s A^2s	
$(di/dt)_{cr}$	$T_{VJ} = T_{VJM}; f = 50$ Hz; $t_p = 200$ μs ; $V_D = 2/3 V_{DRM}; I_G = 1$ A; $di_G/dt = 1$ A/ μs	repetitive, $I_T = 860$ A non repetitive, $I_T = I_{TAVM}$	100 500	A/ μs A/ μs
$(dv/dt)_{cr}$	$T_{VJ} = T_{VJM}; V_D = 2/3 V_{DRM}; R_{GK} = \infty$; method 1 (linear voltage rise)		1000	V/ μs
P_{GM}	$T_{VJ} = T_{VJM}; t_p = 30$ μs $I_T = I_{T(AV)M}; t_p = 500$ μs	120 60	W W	
P_{GAV}		20	W	
V_{RGM}		10	V	
T_{VJ}		-40...+130	$^\circ C$	
T_{VJM}		130	$^\circ C$	
T_{stg}		-40...+125	$^\circ C$	
V_{ISOL}	50/60 Hz, RMS $t = 1$ min	3000	V~	
	$I_{ISOL} \leq 1$ mA $t = 1$ s	3600	V~	
M_d	Mounting torque (M6)	4.5 - 7	Nm	
	Terminal connection torque (M8)	11 - 13	Nm	
Weight	Typical including screws	750	g	

Data according to IEC 60747 and refer to a single diode unless otherwise stated.



Features

- International standard package
- **D**irect **C**opper **B**onded Al_2O_3 -ceramic with copper base plate
- Planar passivated chips
- Isolation voltage 3600 V~
- UL registered, E 72873
- Keyed gate/cathode twin pins

Applications

- Motor control, softstarter
- Power converter
- Heat and temperature control for industrial furnaces and chemical processes
- Lighting control
- Solid state switches

Advantages

- Simple mounting
- Improved temperature and power cycling
- Reduced protection circuits

Symbol	Conditions	Characteristic Values	
		typ.	max.
I_{RRM}, I_{DRM}	$V_R / V_D = V_{RRM} / V_{DRM}$	$T_{VJ} = T_{VJM}$	40 mA
V_T, V_F	$I_T, I_F = 600 \text{ A}$	$T_{VJ} = 25^\circ\text{C}$	1.36 V
V_{T0}	For power-loss calculations only		0.8 V
r_t		$T_{VJ} = T_{VJM}$	0.68 mΩ
V_{GT}	$V_D = 6 \text{ V}$	$T_{VJ} = 25^\circ\text{C}$	2 V
		$T_{VJ} = -40^\circ\text{C}$	3 V
I_{GT}	$V_D = 6 \text{ V}$	$T_{VJ} = 25^\circ\text{C}$	150 mA
		$T_{VJ} = -40^\circ\text{C}$	220 mA
V_{GD}	$V_D = \frac{2}{3} V_{DRM}$	$T_{VJ} = T_{VJM}$	0.25 V
I_{GD}			10 mA
I_L	$t_p = 30 \mu\text{s}; V_D = 6 \text{ V}$ $I_G = 0.45 \text{ A}; di_G/dt = 0.45 \text{ A}/\mu\text{s}$	$T_{VJ} = 25^\circ\text{C}$	200 mA
I_H	$V_D = 6 \text{ V}; R_{GK} = \infty;$	$T_{VJ} = 25^\circ\text{C}$	150 mA
t_{gd}	$V_D = \frac{1}{2} V_{DRM}$ $I_G = 1 \text{ A}; di_G/dt = 1 \text{ A}/\mu\text{s}$	$T_{VJ} = 25^\circ\text{C}$	2 μs
t_q	$V_D = \frac{2}{3} V_{DRM}$ $dv/dt = 50 \text{ V}/\mu\text{s}; -di/dt = 10 \text{ A}/\mu\text{s}$ $I_T = 300 \text{ A}; V_R = 100 \text{ V}; t_p = 200 \mu\text{s}$	$T_{VJ} = T_{VJM}$	200 μs
Q_S	$I_T = 300 \text{ A}; -di/dt = 50 \text{ A}/\mu\text{s}$	$T_{VJ} = T_{VJM}$	760 μC
I_{RM}			275 A
R_{thJC}	per thyristor; DC current per module		0.139 K/W 0.07 K/W
R_{thJK}	per thyristor; DC current per module		0.179 K/W 0.09 K/W
d_s	Creeping distance on surface		12.7 mm
d_A	Creepage distance in air		9.6 mm
a	Maximum allowable acceleration		50 m/s ²

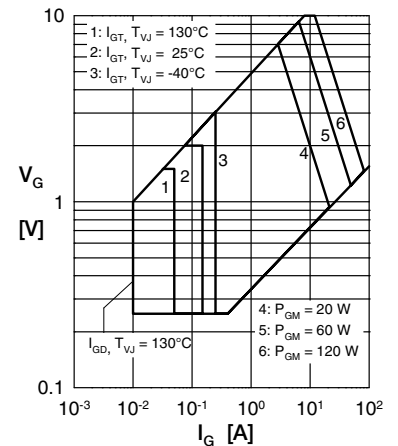


Fig. 3 Surge overload current
 $I_{TSM/FSM}$: Crest value, t: duration

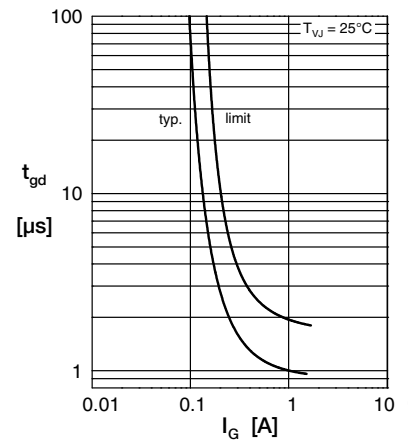
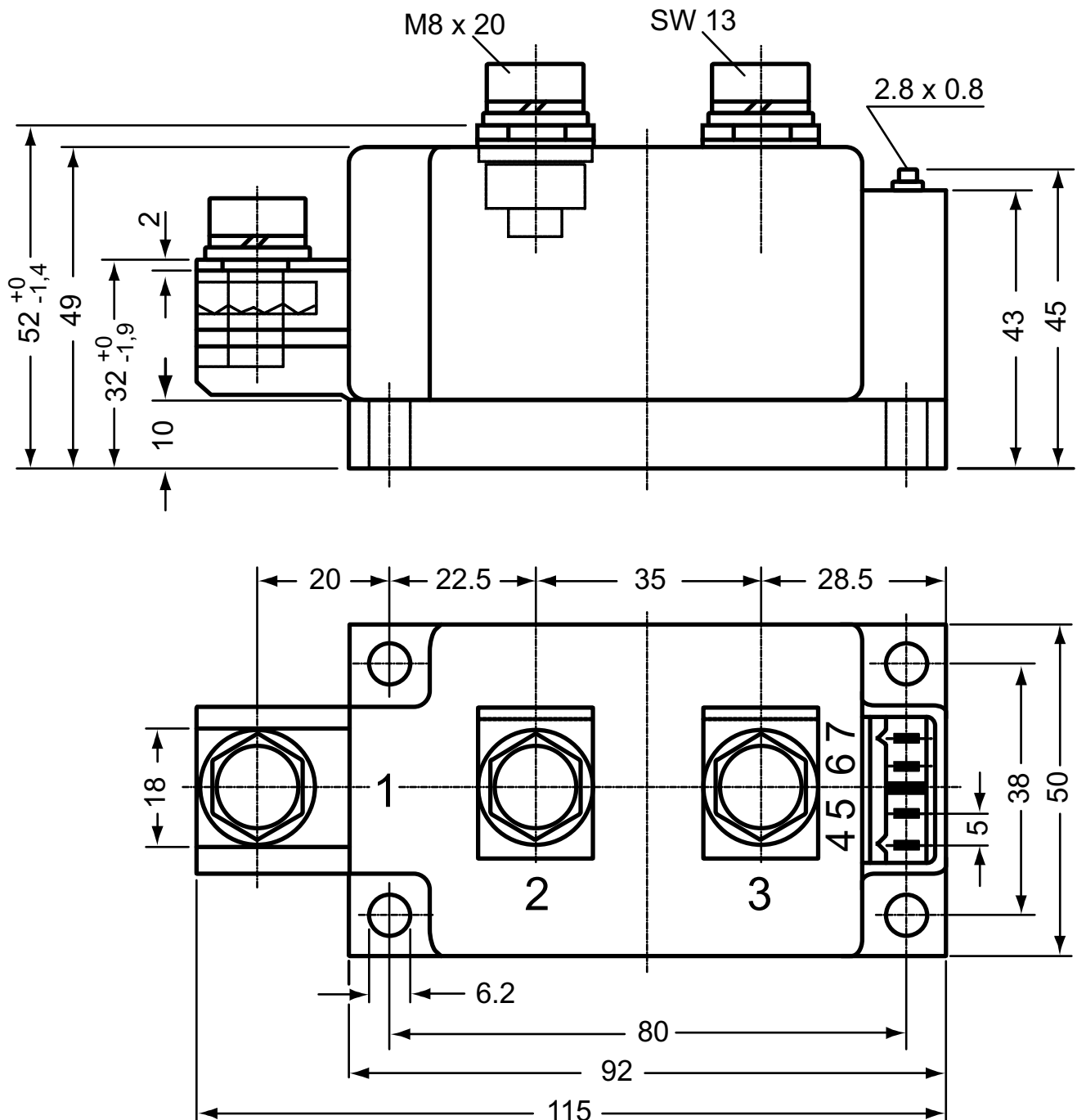


Fig. 2 Gate trigger delay time

Dimensions in mm (1 mm = 0.0394")



Optional accessories for modules

Keyed gate/cathode twin plugs with wire length = 350 mm, gate = white, cathode = red

Type ZY 180L (L = Left for pin pair 4/5)

Type ZY 180R (R = Right for pin pair 6/7) } UL 758, style 3751

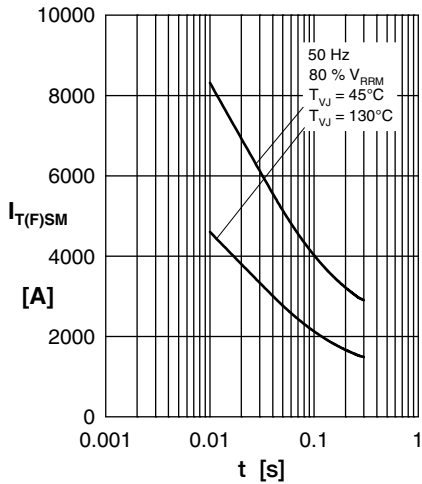


Fig. 3 Surge overload current
 $I_{T(F)SM}$: Crest value, t: duration

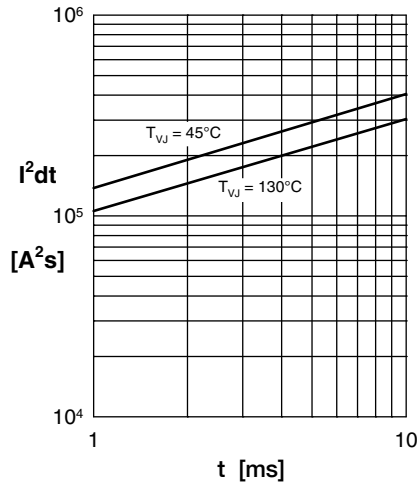


Fig. 4 I^2dt versus time

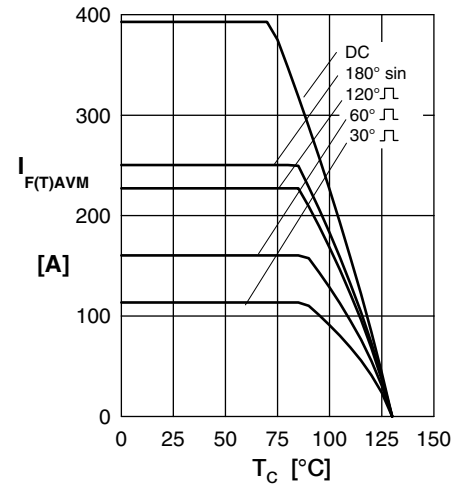


Fig. 4a Max. forward current at case temperature

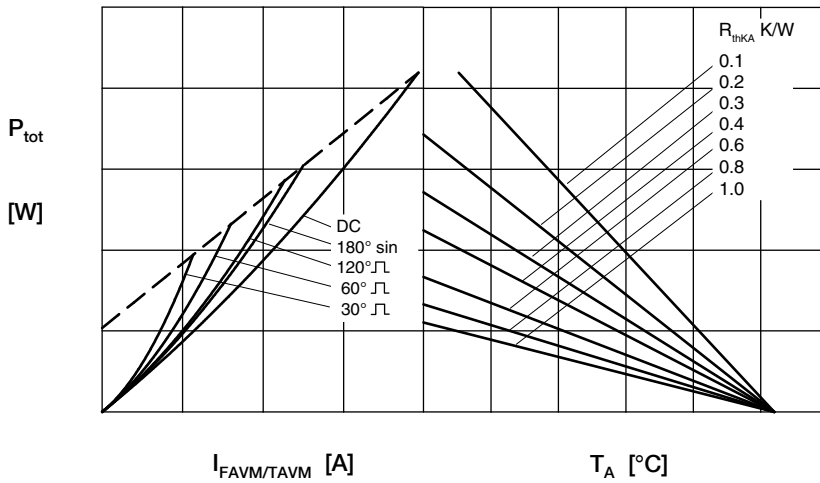


Fig. 5 Power dissipation versus on-state current and ambient temperature (per thyristor or diode)

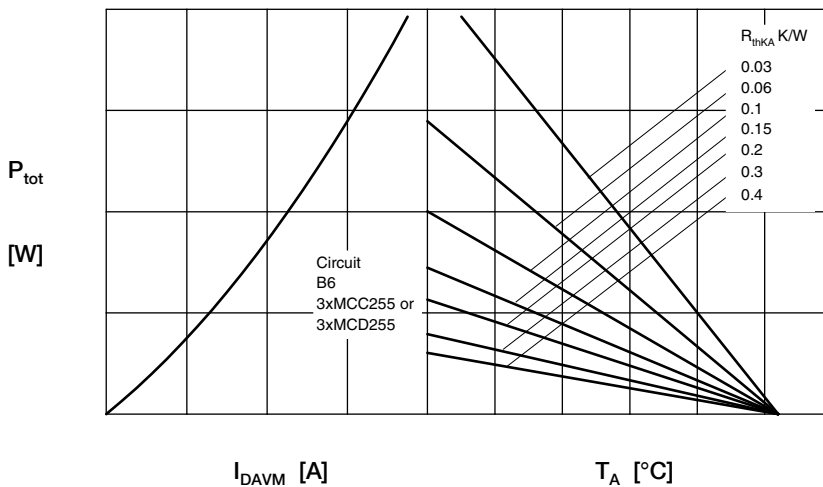


Fig. 6 Three phase rectifier bridge: Power dissipation versus direct output current and ambient temperature

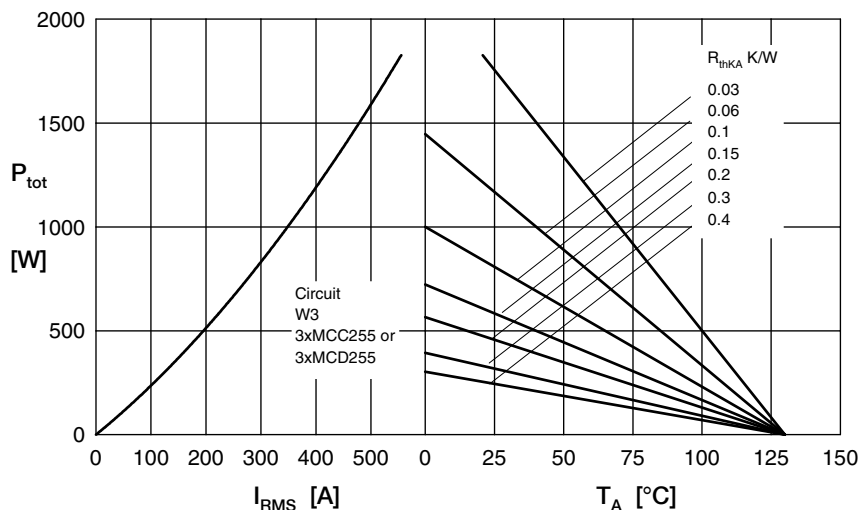


Fig. 7 Three phase AC-controller: Power dissipation versus I_{RMS} output current and ambient temperature

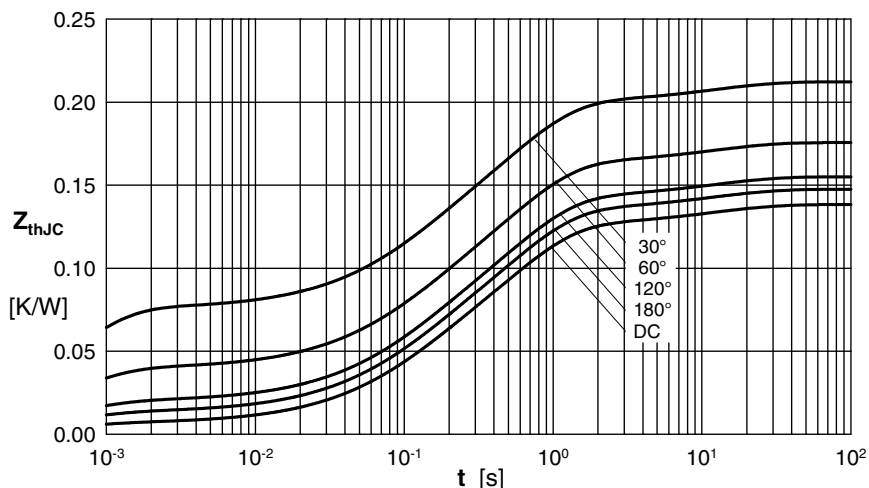


Fig. 8 Transient thermal impedance junction to case (per thyristor/diode)

R_{thJC} for various conduct. angles d :

d	R_{thJC} (K/W)
DC	0.139
180°	0.148
120°	0.156
60°	0.176
30°	0.214

Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.0066	0.00054
2	0.0358	0.098
3	0.0831	0.54
4	0.0129	12

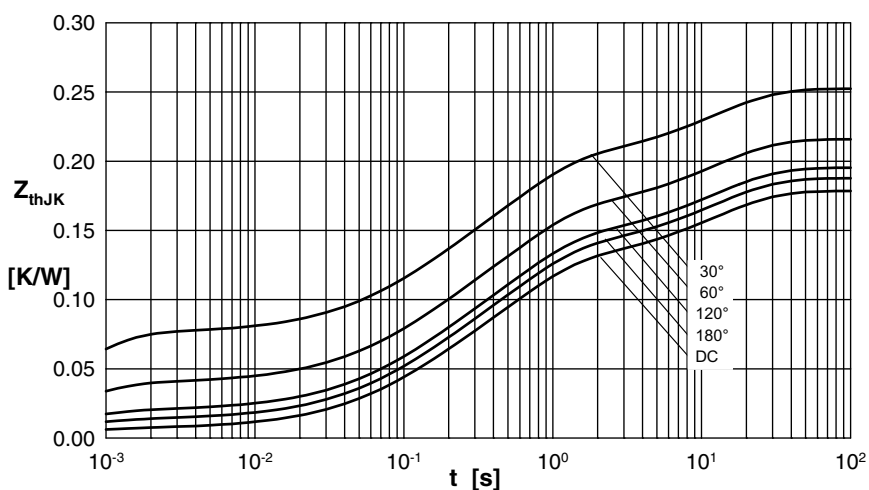


Fig. 9 Transient thermal impedance junction to heatsink (per thyristor/diode)

R_{thJK} for various conduct. angles d :

d	R_{thJK} (K/W)
DC	0.179
180°	0.188
120°	0.196
60°	0.216
30°	0.254

Constants for Z_{thJK} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.0066	0.00054
2	0.0358	0.098
3	0.0831	0.54
4	0.0129	12
5	0.04	12

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [Discrete Semiconductor Modules](#) category:

Click to view products by [IXYS](#) manufacturer:

Other Similar products are found below :

[07.471.1280.0](#) [2320160](#) [2320173](#) [25.161.3453.0](#) [25.163.0653.1](#) [25.163.2453.0](#) [25.163.4253.0](#) [25.179.2253.0](#) [25.190.2053.0](#) [25.194.3253.0](#)
[25.194.3453.0](#) [25.320.2053.1](#) [25.320.4853.1](#) [25.320.5253.1](#) [25.325.1253.1](#) [25.325.3653.1](#) [25.326.3253.1](#) [25.326.3553.1](#) [25.326.4253.1](#)
[25.330.0953.1](#) [25.330.1653.1](#) [25.330.3953.1](#) [25.330.4753.1](#) [25.330.5253.1](#) [25.332.4353.1](#) [25.334.3253.1](#) [25.334.3353.1](#) [25.350.1653.0](#)
[25.350.2053.0](#) [25.350.2453.0](#) [25.352.1453.0](#) [25.352.1653.0](#) [25.352.2453.0](#) [25.352.4753.1](#) [25.352.5453.1](#) [25.521.3653.0](#) [25.522.3253.0](#)
[25.522.3353.0](#) [25.602.4053.0](#) [25.640.5053.0](#) [2810939](#) [2813583](#) [2866527](#) [2868606](#) [2907719](#) [2950103](#) [APL502J](#) [APL602J](#) [APT10025JVFR](#)
[APT10043JVR](#)