Zakłady Elektronowe
LAMINA S.A.

T75-650
Phase Control Thyristor

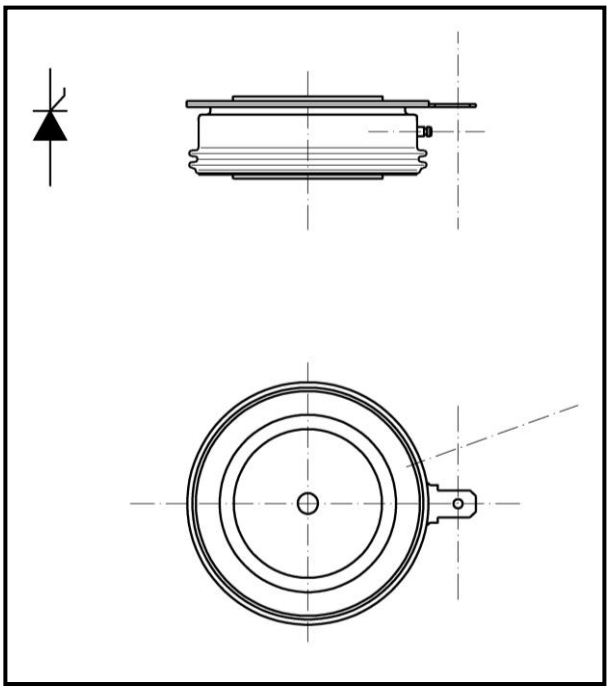
KKT75650, March 2003 version

Thyristors type T75 are of modern design with pressure contacts, high alumina ceramic insulator and cold-welding encapsulation. Designed for use in power electronic circuits and equipment under normal operating conditions.

KEY PARAMETERS

U_{DRM}, U_{RRM}	**up to 2000 V**
$I_{T(AV)}$	**650 A**
I_{TSM}	**8100 A**
du/dt*	**1000 V/µs**
di/dt	**150 A/µs**

* maximum (non standard) value



Outline type code: JEDEC TO-200AB
(E-puk)
See package details for further information

FEATURES

- all diffused design
- high current capabilities
- high surge current capabilities
- high rates voltages
- high du/dt
- low gate current
- dynamic gate
- low thermal impedance
- tested according to IEC standards
- compact size and small weight

APPLICATION

- High Power Drives
- DC Motor Control
- High Voltage Power Supplies

Designed for use in high power industrial and commercial electronic circuits and equipment where high currents are encoutered and high reliability is essential.

Zakłady Elektronowe LAMINA *S.A.*
Puławska 34
PL-05-500 Piaseczno
POLAND

Tel.: +48-22-7572731
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Fax.: +48-22-3989407
e-mail: sekretariat@lamina.com.pl
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ORDERING INFORMATION

When ordering please refer to device code builder presented below.
Please use the complete part number when ordering, quote or in any future correspondence relating to your order.

T75-650-□□

voltage class (hundreds of volts)

This is standard device, with no dynamic parameters specified and standard accessory set.
Please refer to **Electrical Parameters** if specific dynamic demands have to be met.
Those information, as well as any other concerning non-standard accessories e.g. custom leads lenght or lead terminal connector type should be included in the order.

ELECTRICAL PARAMETERS

Voltage ratings

Voltage class	U_{DRM}, U_{RRM}	U_{DSM}, U_{RSM}	I_{DRM}, I_{RRM}
	V	V	mA
04	400	500	30
06	600	700	
08	800	900	
10	1000	1100	
12	1200	1300	
14	1400	1500	
16	1600	1700	
18	1800	1900	
20	2000	2100	

du/dt group codes

Group code	du/dt
	V/μs
0	no specified value
5	320
6	500
7	1000

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Electrical properties

Parameter		Unit	Test conditions	Value
Average on-state current	$I_{T(AV)}$	A		650
Case temperature	T_c	°C		65
RMS on-state current	$I_{T(RMS)}$	A		1000
Surge on-state current	I_{TSM}	A	T_j=125°C, U_R=0,8U_{RRM}, t_p=10ms	8100
I^2t – value	I^2t	kA^2s		330
On-state voltage max.	U_{TM}	V	T_j=25°C, I_{TM}=1500A	2,0
Treshold voltage	$U_{T(T0)}$	V		0,93
Slope resistance	r_T	mΩ		0,71
Latching current	I_l	mA	T_j=25°C, U_D=12V	800
Holding current	I_H	mA	T_j=25°C, U_D=12V	200
Circuit commutated turn-off time (typical)	t_q (typ)	µs	T_j=125°C, I_{TM}=250A, di_R/dt=25A/µs, du/dt=20V/µs, U_D=0,67U_{DRM}, U_{RM}=100V	150
Turn-0n time (typical)	t_{on}	µs	I_{TM}=100A, U_{DM}=100V	7
Rate of rise of on-state current-repetitive	di/dt	A/µs	T_j=125°C, I_{TM}=3$I_{T(AV)}$, U_D=0,67U_{DRM}, f=50Hz, I_{GM}=1A, di_G/dt=1A/µs	150
Critical rate of raise of off-state voltage	du/dt	V/µs	T_j=125°C, U_D=0,67U_{DRM},	320 - 1000
Gate current to trigger	I_{GT}	mA	T_j=25°C, U_D=12V	150
Gate voltage to trigger	U_{GT}	V	T_j=25°C, U_D=12V	3

Termal properties

Parameter		Unit	Test conditions	Value
Thermal resistance, junction to case	R_{thJC}	°C/W	two sided, DC	0,04
Thermal resistance, case to heatsink	R_{thCS}	°C/W	two sided	0,020
Operating junction temperature	T_{jmin}...T_{jmax}	°C		-40...+125
Storage temperature	T_{stg}	°C		-40...+125

Mechanical properties

Parameter		Unit	Value
Clamping force	F_M	kN	9,0 ... 11,0
Weight	m	g	85

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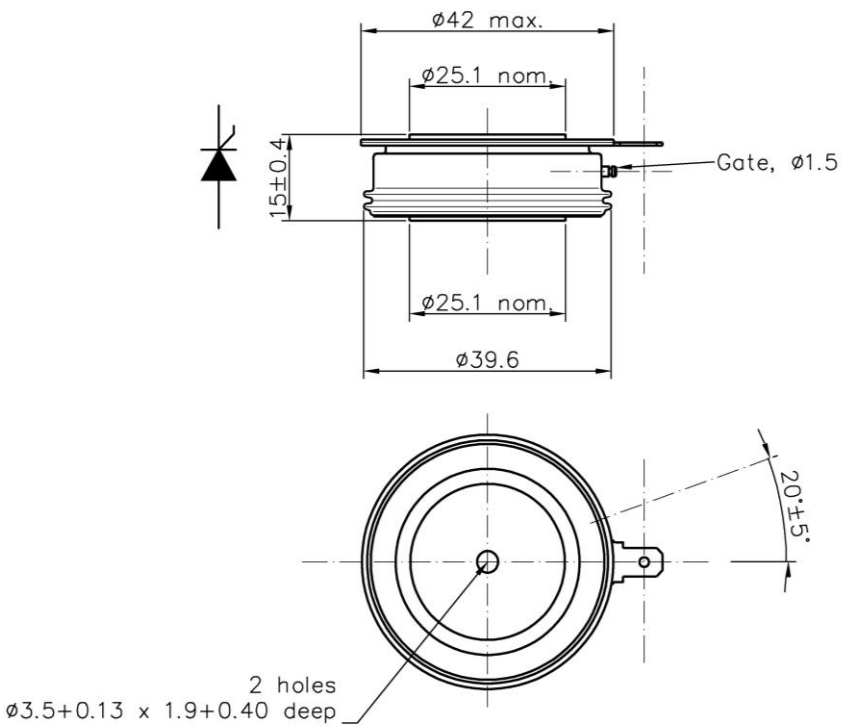
Package details



Clamping force: 9 – 11 kN
Lead lenght: std. 205 mm (or custom lenght)
Lead terminal connector: M4 ring

Nominal weight: 85 g

For further package information, please contact Sales & Marketing Department. All dimensions in mm, unless stated otherwise.
Do not scale.

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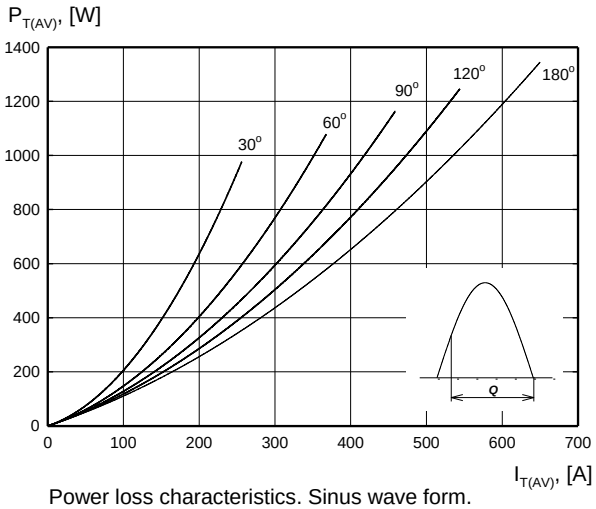
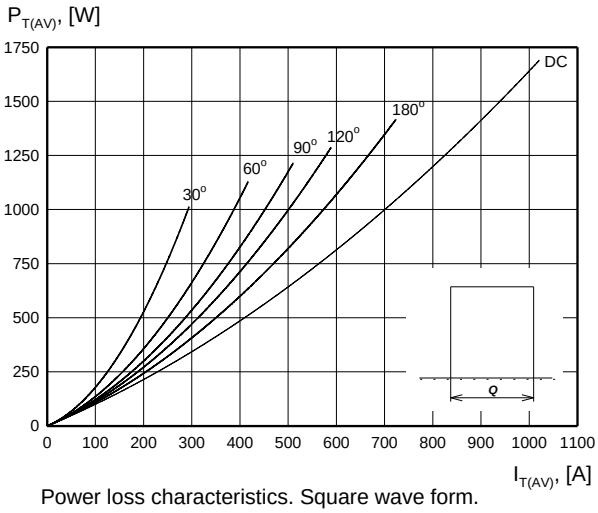
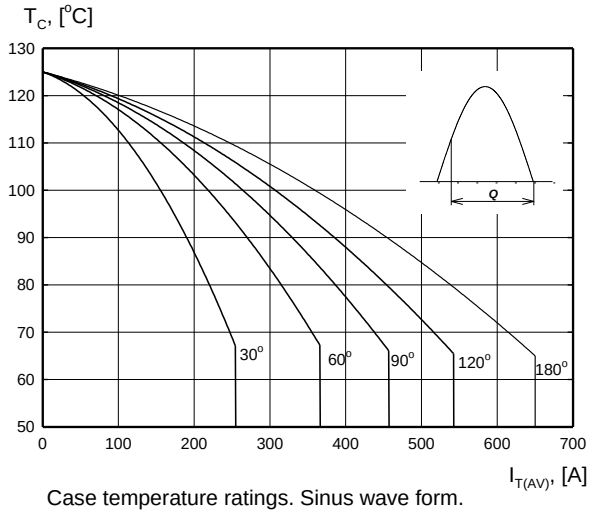
CHARACTERISTICS



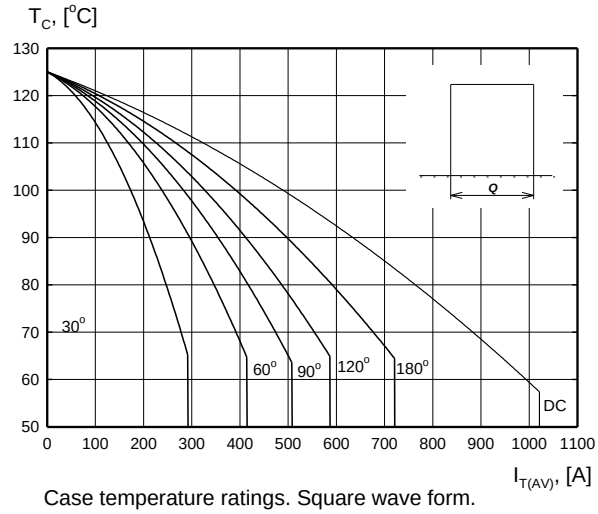
Power loss characteristics. Sinus wave form.



Power loss characteristics. Square wave form.



Case temperature ratings. Sinus wave form.



Case temperature ratings. Square wave form.

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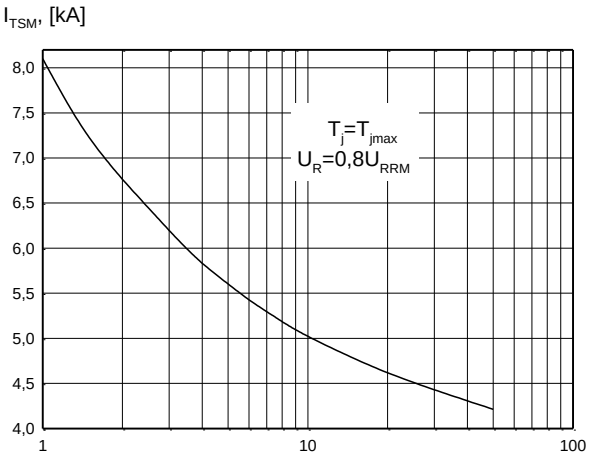
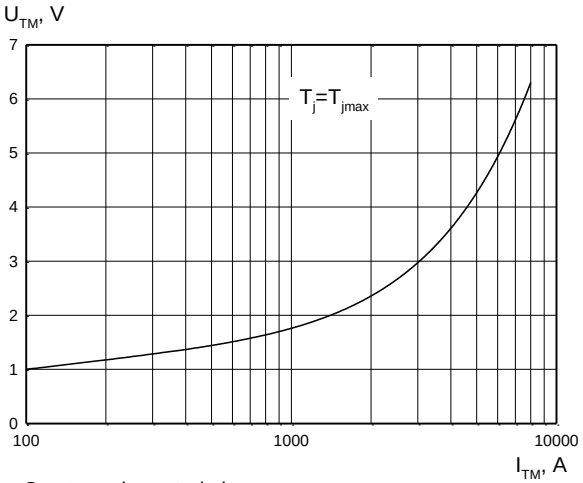
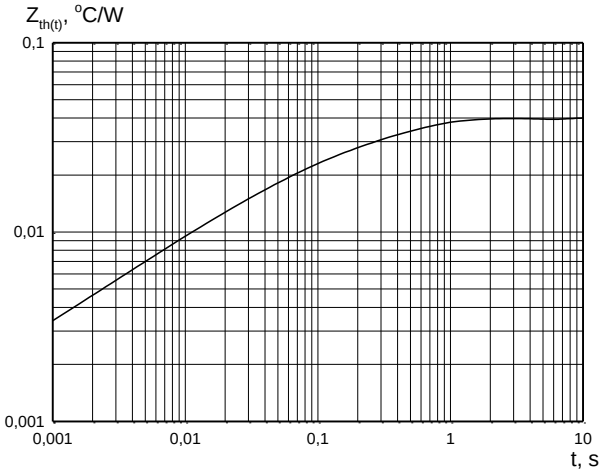


Non-repetitive surge current rating



On-state characteristic



Transient thermal impedance

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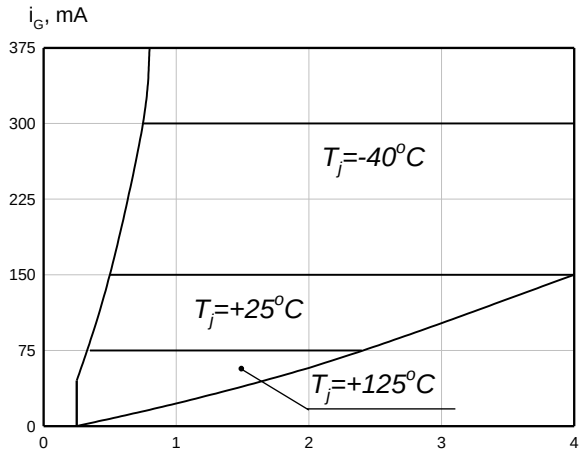
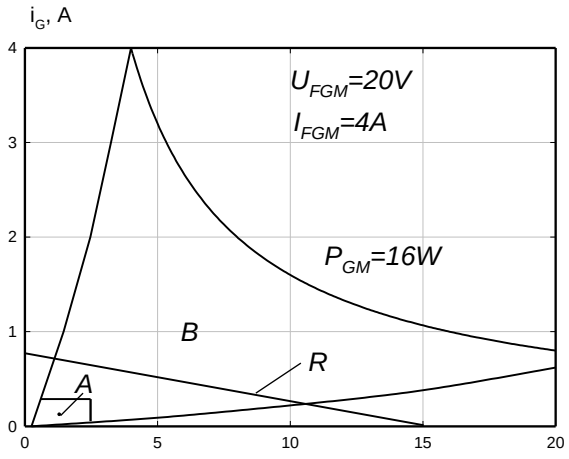
Gate characteristics



Gate characteristic. Possible trigger area.



Gate characteristic.
A - possible trigger area
B - permitted gate pulse forcing area
R - recommended gate drive load line

HEATSINKS

LAMINA S.I. has its own proprietary range of extruded aluminium heatsinks designed to optimise the performance of our semiconductors with natural and forced air flow. High efficiency water cooled copper heatsinks are also available.

DEVICE CLAMPS

Disc devices require the correct clamping force to ensure their best operation. LAMINA S.I. offers a wide selection of clamps to suit all of our manufactured devices.

POWER ASSEMBLY CAPABILITY

LAMINA S.I. provides a support for those customers requiring more than a basic semiconductor and offers precisely assembled Power Blocks according to factory or customer standards.

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