

## Features

- Full blocking capability over wide temperature range
- Hard soldered joints for high reliability

## Key Parameters

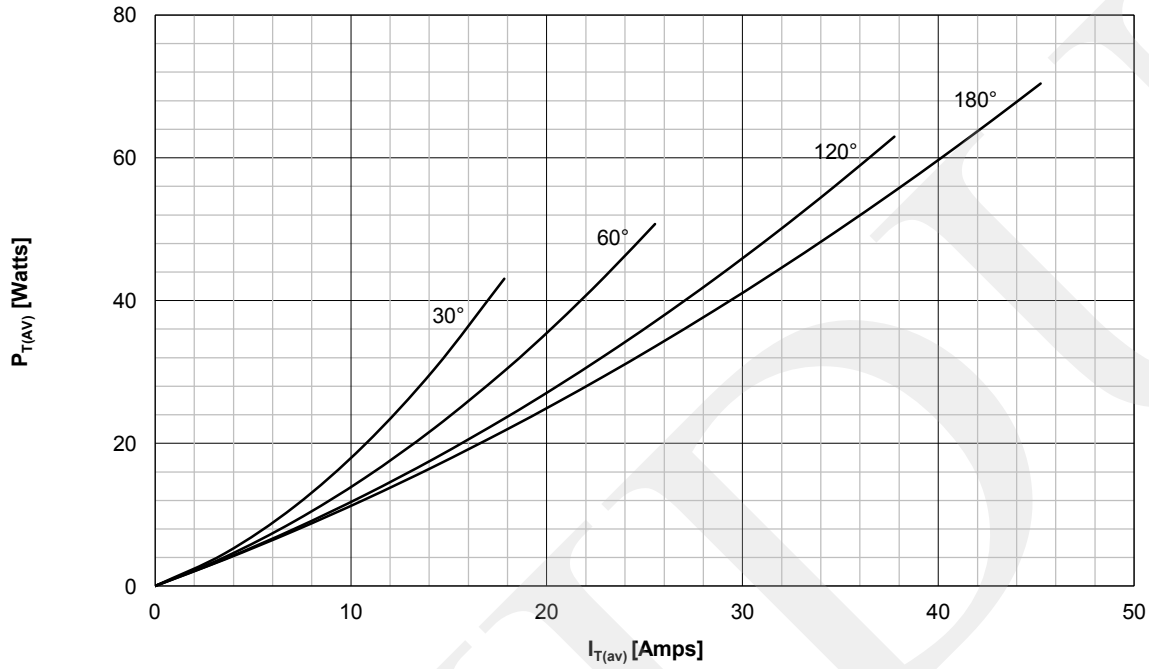
$V_{DRM} / V_{RRM}$	= 1600V
$I_{T(AV)}$	= 45A
$I_{TSM}$	= 1000A
$V_{T(TO)}$	= 1.0V
$r_T$	= 5.0mΩ

## Applications

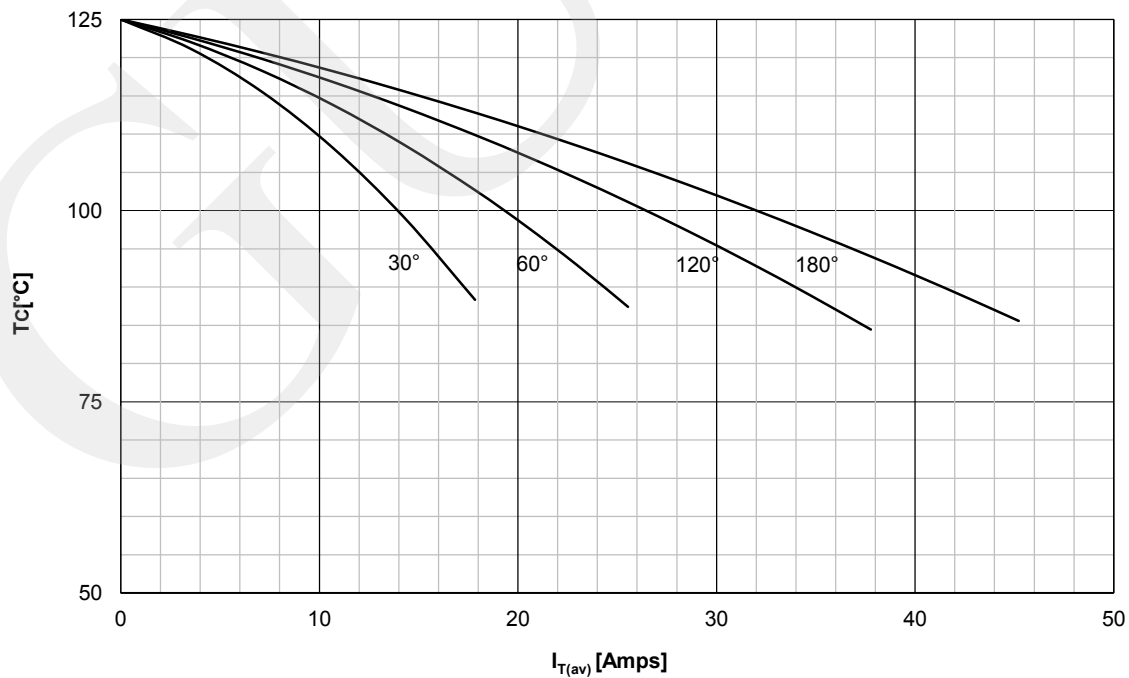
- Power Supplies
- AC Controllers
- Controlled Rectifiers
- DC motor control

Symbol	Characteristic	Conditions	T <sub>J</sub> [°C]	Value	Unit
<b>BLOCKING</b>					
$V_{RRM}$	Repetitive peak reverse voltage		125	200 - 1600	V
$V_{RSM}$	Non-repetitive peak reverse voltage		125	300 - 1700	V
$V_{DRM}$	Repetitive peak off-state voltage		125	200 - 1600	V
$I_{RRM}$	Repetitive peak reverse current	$V = V_{RRM}$	125	10	mA
$I_{DRM}$	Repetitive peak off-state current	$V = V_{DRM}$	125	10	mA
<b>CONDUCTING</b>					
$I_{T(AV)}$	Mean on state current	180° sin ,50 Hz, T <sub>c</sub> = 85°C		45	A
$I_{TRMS}$	RMS on state current			71	A
$I_{TSM}$	Surge on state current	Sine wave, 10 ms Without reverse voltage	25	1000	A
			125	900	A
$I^2 t$	$I^2 t$	Sine wave, 10 ms Without reverse voltage	25	5000	A <sup>2</sup> s
			125	4050	A <sup>2</sup> s
$V_T$	Peak on state voltage	Peak on state current = 140A	125	1.71	V
$V_{T(TO)}$	Threshold voltage		125	1.0	V
$r_T$	On state slope resistance		125	5.0	mΩ
<b>SWITCHING</b>					
di/dt	Critical rate of rise of on-state current	Repetitive	125	150	A/μs
dv/dt	Critical rate of rise of off-state voltage	$V_{DR} = 67\% V_{DRM}$	125	1000	V/μs
<b>GATE</b>					
$I_{gt}$	Gate trigger current	$V_D = 6V$	25	150	mA
$V_{gt}$	Gate trigger voltage	$V_D = 6V$	25	3.0	V
$I_H$	Holding current	$V_D = 6V$ , gate open circuit	25	200	mA
$I_L$	Latching current	$V_D = 6V$	25	400	mA
<b>MOUNTING</b>					
$R_{th(j-c)}$	Thermal impedance, sin 180°	Junction to case		0.56	°C/W
$R_{th(c-h)}$	Thermal impedance	Case to heatsink		0.20	°C/W
$T_j$	Max. junction temperature			125	°C
$T_{stg}$	Storage temperature			-40 ... 125	°C
M	Mounting Torque			4	Nm
W	Weight (Approx.)			38	gm

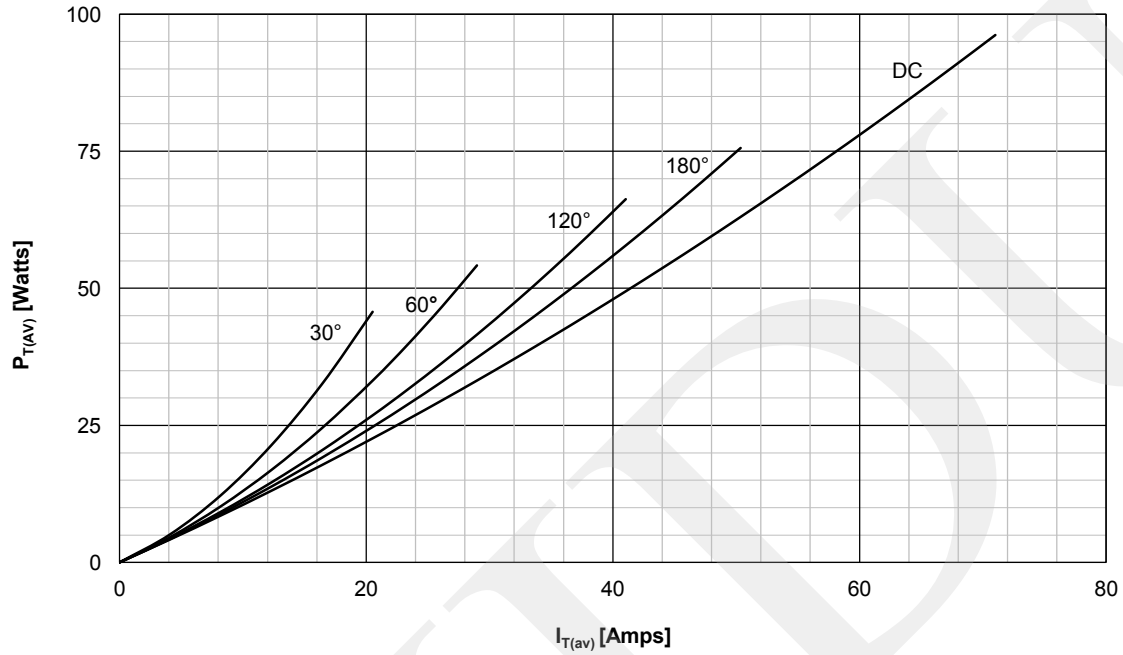
DISSIPATION CHARACTERISTICS  
SINE WAVE



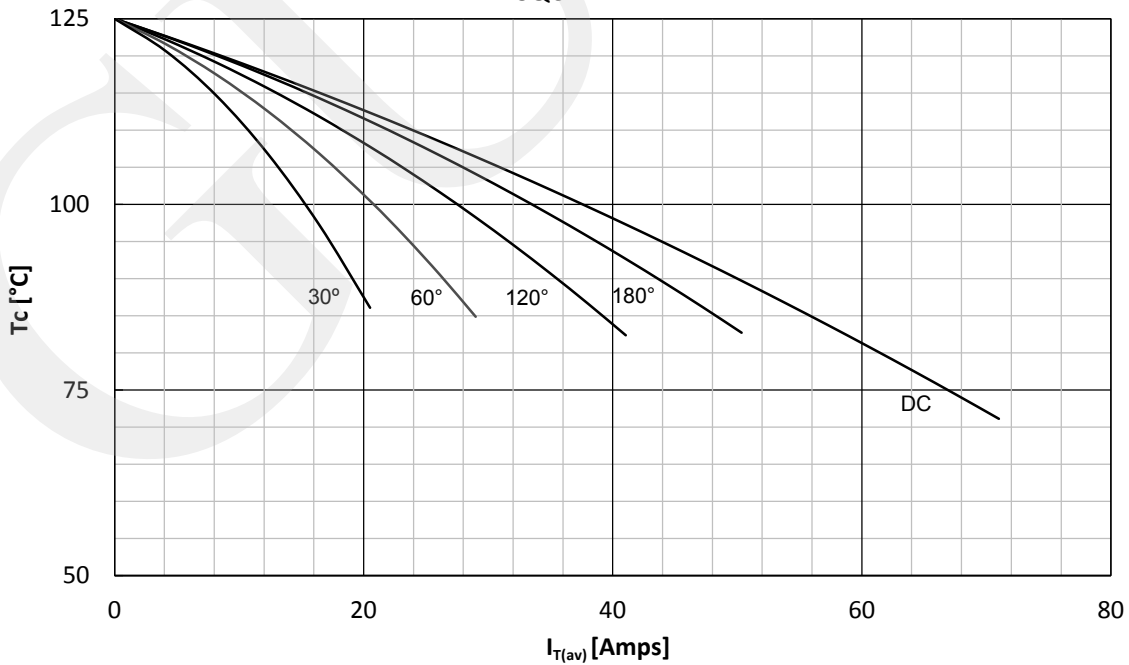
ON STATE CURRENT DERATING CURVE  
SINE WAVE



DISSIPATION CHARACTERISTICS  
SQUARE WAVE

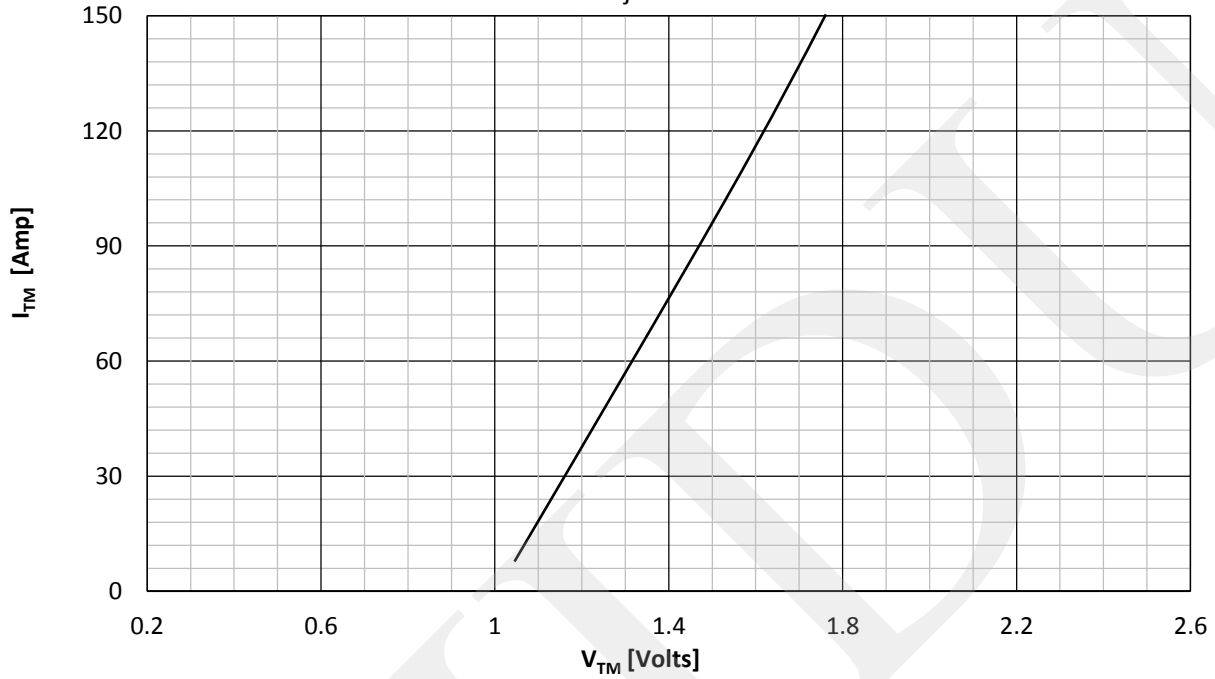


ON STATE CURRENT DERATING CURVE  
SQUARE WAVE

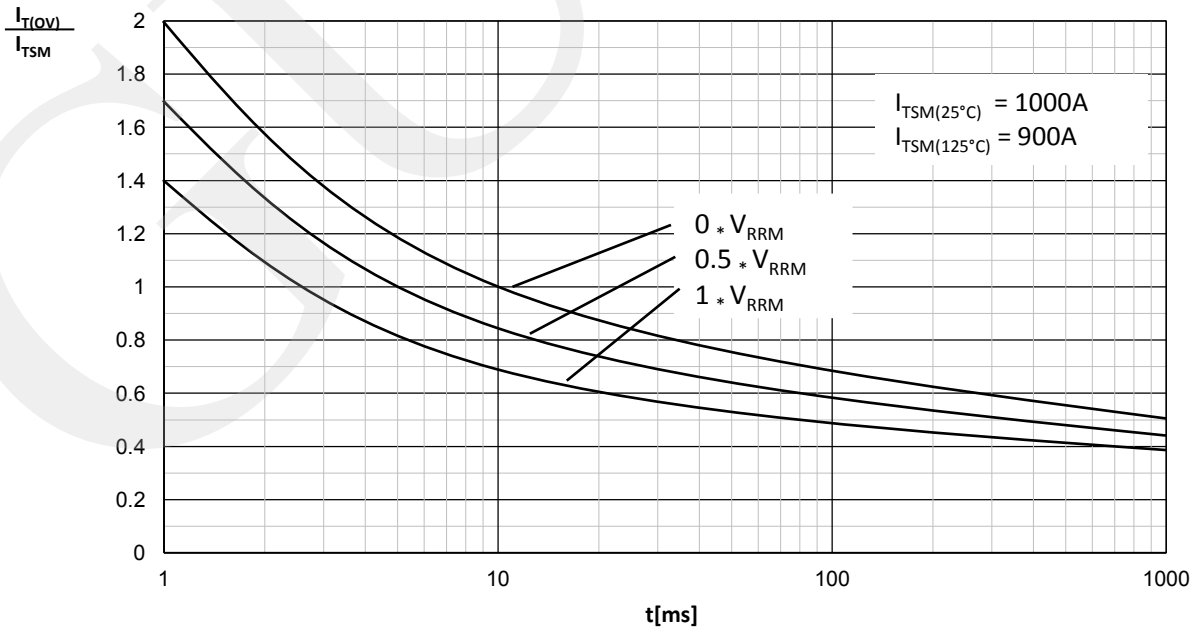


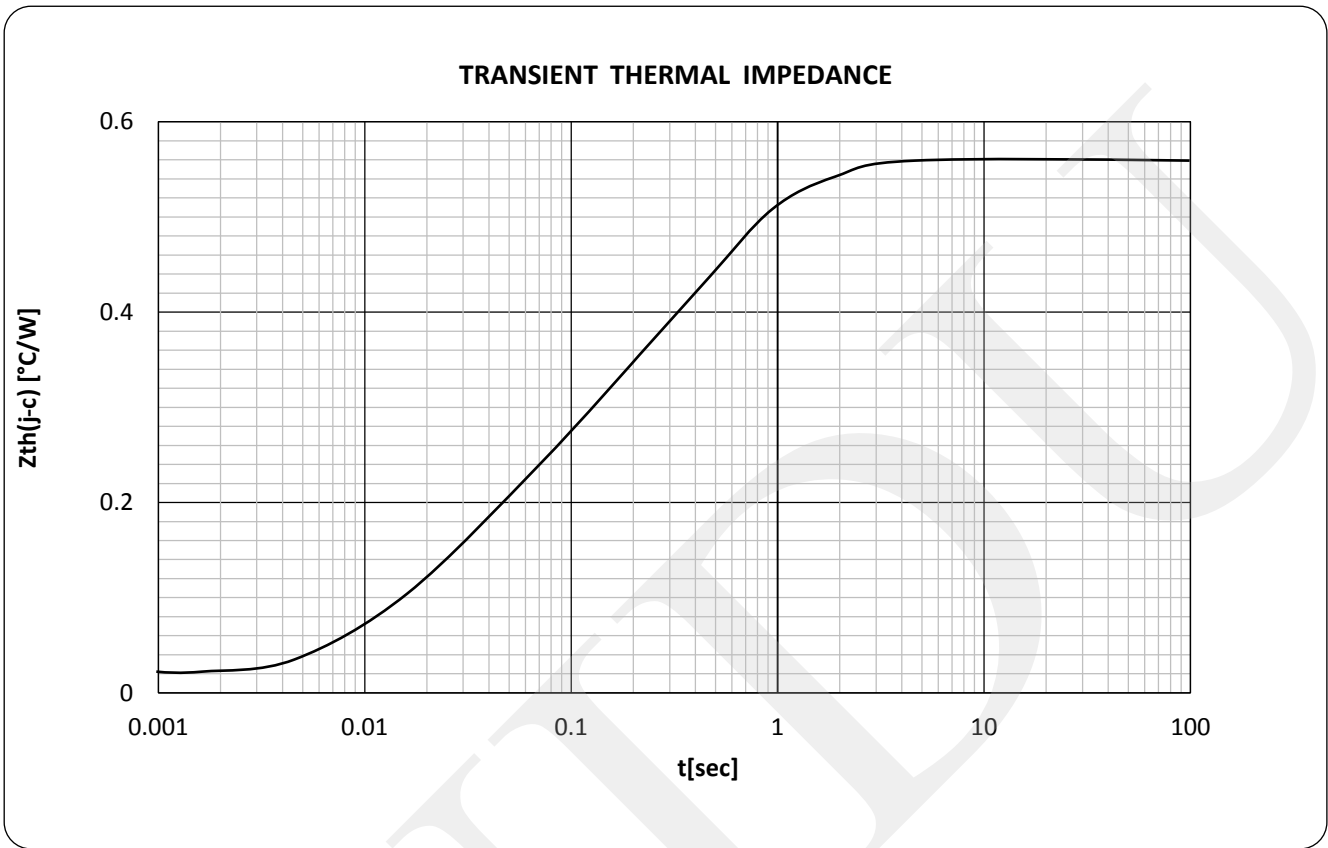
ON -STATE CHARACTERISTICS

$T_j = 125^\circ\text{C}$



SURGE CHARACTERISTICS





**ORDERING INFORMATION**

<b>GDKP</b>	<b>45</b>	<b>S</b>	<b>XX</b>	<b>U</b>
Phase Control Thyristor	Current Code	Stud / Flat Base Version	Voltage Code Code X 100 = $V_{DRM}/V_{RRM}$	Stud Threads U = 1/4" UNF M = M8 x 1.25

Order Code GDKP45S16U : 1600V  $V_{DRM}, V_{RRM}$ , Stud base Thyristor with 1/4" UNF threads

Outline

