



XT2116

Fast Turn-on Asymmetric Thyristor

Replaces March 1998 version, DS4674-2.2

DS4674-3.0 January 2000

APPLICATIONS

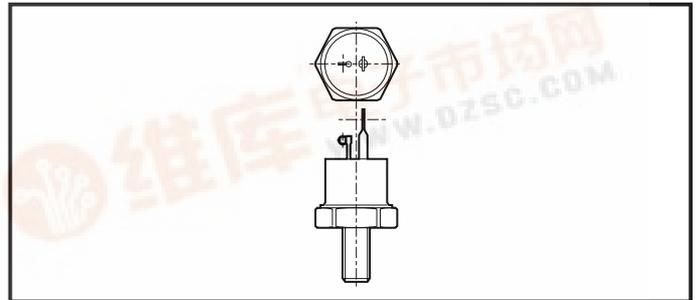
- Pulse Modulators
- Laser Diode Triggering
- Capacitor Discharge Applications

KEY PARAMETERS

V_{DRM}	1600V
$I_{T(AV)}$	50A
I_{TSM}	800A
dIdt	2000A/ μ s
dV/dt	300V/ μ s
t_{on}	350ns

FEATURES

- The XT2116 is Asymmetrical Thyristor in which the reverse voltage capability has been sacrificed to enable a high forward blocking characteristic combined with excellent turn-on performance.
- Designed for rapid and efficient switching of high current pulses.



Outline type code: SO28.
See Package Details for further information.

VOLTAGE RATINGS

Type Number	Max. Rise Time t_r ($T_{case} = 25^\circ\text{C}$) ns	Repetitive Peak Voltage		Peak Working Voltages	
		V_{DRM} V	V_{RRM}^* V	V_{DWM} V	V_{RWM}^* V
XT2116 - 1601	100	1600	< 2	1600	< 2
XT2116 - 1401	120	1400	< 2	1400	< 2
XT2116 - 1201	120	1200	< 2	1200	< 2
XT2116 - 1001	140	1000	< 2	1000	< 2
XT2116 - 801	160	800	< 2	800	< 2

CURRENT RATINGS

Symbol	Parameter	Conditions	Max.	Units
$I_{T(AV)}$	Mean on-state current	Half wave resistive load, $T_{case} = 80^\circ\text{C}$	50	A
$I_{T(RMS)}$	RMS value	$T_{case} = 80^\circ\text{C}$	79	A
I_T	Continuous (direct) on-state current	$T_{case} = 85^\circ\text{C}$	68	A

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SURGE RATINGS

Symbol	Parameter	Conditions	Max.	Units
I_{TSM}	Surge (non-repetitive) forward current	10ms half sine; $T_{case} = 125^{\circ}C$	800	A
I^2t	I^2t for fusing		3200	A ² s

THERMAL AND MECHANICAL DATA

Symbol	Parameter	Conditions	Min.	Max.	Units
$R_{th(j-c)}$	Thermal resistance - junction to case	d.c.	-	0.35	$^{\circ}C/W$
$R_{th(c-h)}$	Thermal resistance - case to heatsink	Mounting torque 3.5Nm with mounting compound	-	0.25	$^{\circ}C/W$
T_{vj}	Virtual junction temperature	On-state (conducting)	-	125	$^{\circ}C$
T_{stg}	Storage temperature range		-55	125	$^{\circ}C$
-	Mounting torque		3.5*	4.0	Nm

* Recommended value.

DYNAMIC CHARACTERISTICS

$T_{case} = 25^{\circ}C$ unless otherwise stated.

Symbol	Parameter	Conditions	Typ.	Max.	Units
V_{TM}	Maximum on-state voltage	At $I_T = 100A$	-	2.0	V
I_{RRM}/I_{DRM}	Peak reverse and off-state current	At V_{RRM}/V_{DRM}	-	10/10	mA
dV/dt	Maximum linear rate of rise of off-state voltage	$T_j = 125^{\circ}C$, To V_{DRM} , $R_{GK} = 47\Omega$	-	300	V/ μ s
dI/dt	Rate of rise of on-state current	Half sine wave of 2 μ s, $T_j = 125^{\circ}C$ Gate source 20V, 10 Ω , $t_i = 160ns$	-	2000	A/ μ s
I_L	Latching current	-	45	-	mA
I_H	Holding current	-	35	-	mA
t_d	Delay time	$V_D = 400V$, gate source = 500mA, $t_r = 50ns$	-	250	ns
t_q	Circuit commutated turn-off time	$I_T = 25A$, $V_{RM} = 0V$, $V_{DR} = V_{DWM}$, $T_{case} = 120^{\circ}C$, $R_{GK} = 47\Omega$, dV/dt = 100V/ μ s.	-	120 [†]	μ s

[†] Available to 10 μ s.

GATE TRIGGER CHARACTERISTICS AND RATINGS

$T_{case} = 25^{\circ}C$ unless otherwise stated.

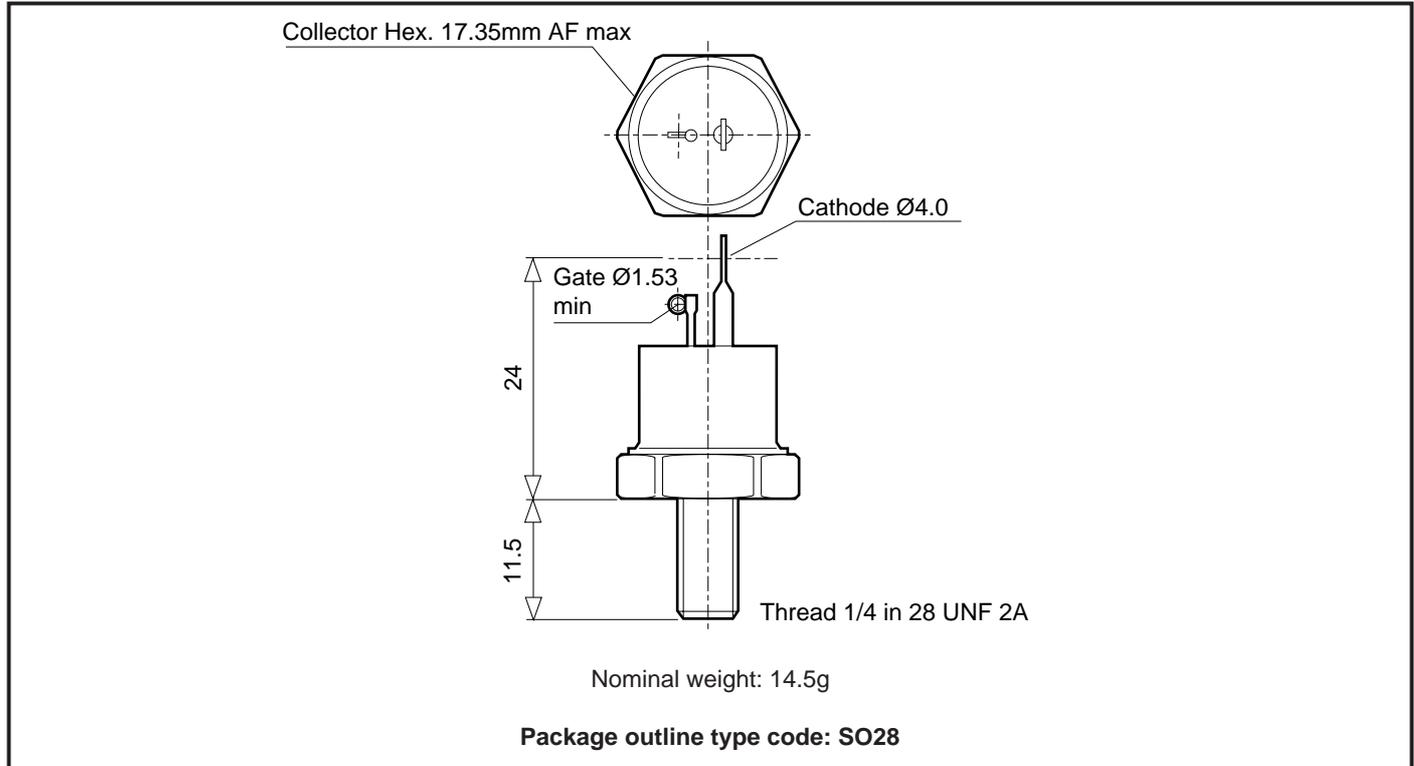
Symbol	Parameter	Conditions	Typ.	Max.	Units
V_{GT}	Gate trigger voltage	$V_{DWM} = 12V$	0.9	3.0	V
I_{GT}	Gate trigger current	$V_{DWM} = 12V$	-	100*	mA
V_{FGM}	Peak forward gate voltage	-	-	40	V
V_{RGM}	Peak reverse gate voltage	-	-	10	V
I_{FGM}	Peak forward gate current	-	-	10	A
P_{GM}	Peak gate power	-	-	40	W
$P_{G(AV)}$	Average gate power	-	-	10	W

*Recommended trigger current not less than 500mA, $t_r < 50ns$.

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PACKAGE DETAILS

For further package information, please contact your local Customer Service Centre. All dimensions in mm, unless stated otherwise. DO NOT SCALE.



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