

Replaces March 1998 version, DS4674-2.2

Capacitor Discharge Applications

XT2116

Fast Turn-on Asymmetric Thyristor

KEY PARAMETERS

V	1600V
	50A
I _{TSM}	800A
didt	2000Α/ μs
dV/dt	300V/ μs
t _{on}	350ns

DS4674-3.0 January 2000

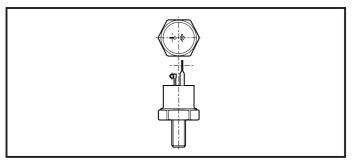
FEATURES

APPLICATIONS ■ Pulse Modulators

Laser Diode Triggering

■ 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	Repetitive Peak Voltage Peak Working Voltages			g Voltages
	(T _{case} = 25°C) ns	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, $T_{case} = 80^{\circ}C$	50	А
I _{T(RMS)}	RMS value	T _{case} = 80°C	79	А
Ι _τ	Continuous (direct) on-state current	T _{case} = 85°C	68	А

XT2116

SURGE RATINGS

Symbol	Parameter	Conditions	Max.	Units
I _{TSM}	Surge (non-repetitive) forward current		800	А
l ² t	l ² t for fusing	10ms half sine; T _{case} = 125°C	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	°C/W
R _{th(c-h)}	Thermal resistance - case to heatsink	Mounting torque 3.5Nm with mounting compound	-	0.25	°C/W
T _{vj}	Virtual junction temperature	On-state (conducting)	-	125	°C
T _{stg}	Storage temperature range		-55	125	°C
-	Mounting torque		3.5 [*]	4.0	Nm

* Recommended value.

DYNAMIC CHARACTERISTICS

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

Symbol	Parameter	Conditions	Тур.	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/µs
dl/dt	Rate of rise of on-state current	Half sine wave of 2 μ s, T _j = 125°C Gate source 20V, 10 Ω . t _r = 160ns	-	2000	A/μs
I _L	Latching current	-	45	-	mA
I _H	Holding current	-	35	-	mA
t _d	Delay time	$V_{D} = 400V$, gate source = 500mA, $t_r = 50$ ns	-	250	ns
t _q	Circuit commutated turn-off time	$ \begin{array}{l} {I_{_{T}}}=25A,{V_{_{RM}}}=0V,{V_{_{DR}}}=V_{_{DWM}},{T_{_{case}}}=120^{\circ}C,\\ {R_{_{GK}}}=47\Omega,dV/dt=100V/\mu s. \end{array} $	-	120†	μs

[†] Available to 10μs.

GATE TRIGGER CHARACTERISTICS AND RATINGS

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

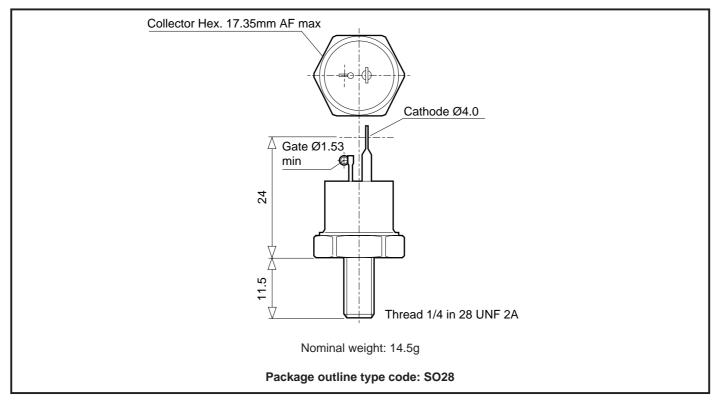
Symbol	Parameter	Conditions	Тур.	Max.	Units
V _{GT}	Gate trigger voltage	V _{DWM} = 12V	0.9	3.0	V
I _{GT}	Gate trigger current	V _{DWM} = 12V	-	100*	mA
V _{FGM}	Peak forward gate voltage	-	-	40	V
V _{rgm}	Peak reverse gate voltage	-	-	10	V
I _{FGM}	Peak forward gate current	-	-	10	А
P _{GM}	Peak gate power	-	-	40	W
P _{G(AV)}	Average gate power	-	-	10	W

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

XT2116

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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Preliminary Information: The product is in design and development. The datasheet represents the product as it is understood but details may change.

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No Annotation: The product parameters are fixed and the product is available to datasheet specification.

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