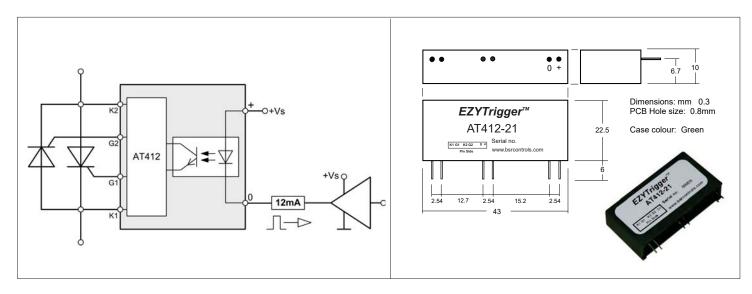


Active trigger units for firing Power Thyristors

EZYTrigger Type

Applications:

o Zero-cross switching applications



Absolute Maximum Ratings	
Ansolute Maximum Ratings	

	55 71			
Parameter	Symbol	AT412 - 12	AT412 - 21	
Peak voltage – positive and negative	Vp	1200 V	2100 V	
Nominal mains voltage	Vm	400 V	690 V	
Continuous DC voltage	V=	400 V	690 V	
Turn-on delay for gate current >1A	tgd	5 μs	5 μs	
Input-Output Isolation	Vi	6000Vrms 50Hz 1min VDE0884		
Input-Output transient immunity	(dv/dt)c	5000) V/μs	
Device transient immunity	(dv/dt)d	2000) V/μs	
Ambient temperature range	Та	-20°C 1	to +85°C	

Technical Data at 25°C

1.8A gate current threshold Gate current rise time ⇒ anode voltage ⇒ (di/dt)g ≥ 200V (di/dt)g 3 A/μs ≥ 400V (di/dt)g 4 A/μs ≥ 5 A/μs ⇒ 800V (di/dt)g 6 A/μs ⇒ 1200V (di/dt)g - 4 A/μs Peak gate current Ip 1.8 A Anode-cathode current at peak voltage Vp In 4.4 mA 5.1 mA Maximum off-state gate current Ic 12 mA Minimum control current Ic 12 mA Control input voltage drop at 12mA gate current Vin Typ 1.2 < 1.5V Maximum reverse control input voltage Vinr 6 V 1.2 A/μs 1.2 A/μs 1.2 A/μs 1.3 A/μs 1.4 A/μs 1.8 A 1.9						
Gate current rise time ⇒ anode voltage ⇒ (di/dt)g 2.5 A/μs 1.2 A/μs ⇒ 200V (di/dt)g 3 A/μs 2 A/μs ⇒ 400V (di/dt)g 4 A/μs 2.5 A/μs ⇒ 800V (di/dt)g 6 A/μs 3 A/μs ⇒ 1200V (di/dt)g - 4 A/μs Peak gate current Ip 1.8 A 1.8 A Anode-cathode current at peak voltage Vp In 4.4 mA 5.1 mA Maximum off-state gate current Io 4.4 mA Minimum control current Icm 7 mA Recommended control current Ic	200mA gate current threshold		Vgtl	10 V	16 V	
⇒ 200V (di/dt)g 3 A/μs 2 A/μs ⇒ 400V (di/dt)g 4 A/μs 2.5 A/μs ⇒ 800V (di/dt)g 6 A/μs 3 A/μs ⇒ 1200V (di/dt)g - 4 A/μs Peak gate current Ip 1.8 A 1.8 A Anode-cathode current at peak voltage Vp In 4.4 mA 5.1 mA Maximum off-state gate current Io < 40 μA	1.8A gate current threshold		Vgth	24 V	36 V	
⇒ 400V (di/dt)g 4 A/μs 2.5 A/μs ⇒ 800V (di/dt)g 6 A/μs 3 A/μs ⇒ 1200V (di/dt)g - 4 A/μs Peak gate current Ip 1.8 A 1.8 A Anode-cathode current at peak voltage Vp In 4.4 mA 5.1 mA Maximum off-state gate current Io < 40 μA < 40 μA Minimum control current Icm 7 mA 7 mA Recommended control current Ic 12 mA 12 mA Control input voltage drop at 12mA gate current Vin Typ 1.2 < 1.5V Typ 1.2 < 1.5V Maximum reverse control input voltage Vinr 6 V 6 V	Gate current rise time	⇒	(di/dt)g	2.5 A/μs	1.2 A/μs	
⇒ 800V (di/dt)g 6 A/μs 3 A/μs Peak gate current Ip 1.8 A 1.8 A Anode-cathode current at peak voltage Vp In 4.4 mA 5.1 mA Maximum off-state gate current Io < 40 μA < 40 μA Minimum control current Icm 7 mA 7 mA Recommended control current Ic 12 mA 12 mA Control input voltage drop at 12mA gate current Vin Typ 1.2 < 1.5V Typ 1.2 < 1.5V Maximum reverse control input voltage Vinr 6 V 6 V		⇒ 200V	(di/dt)g	3 A/μs	2 A/μs	
□ 1200V (di/dt)g □ 4 A/μs Peak gate current		⇒ 400V	(di/dt)g	4 A/μs	2.5 A/μs	
Peak gate current Ip 1.8 A 1.8 A Anode-cathode current at peak voltage Vp In 4.4 mA 5.1 mA Maximum off-state gate current Io < 40 μA		⇒ 800V	(di/dt)g	6 A/μs	3 A/μs	
Anode-cathode current at peak voltage Vp In 4.4 mA 5.1 mA Maximum off-state gate current Io <40 µA <40 µA Minimum control current Icm 7 mA 7 mA Recommended control current Ic 12 mA 12 mA Control input voltage drop at 12mA gate current Vin Typ 1.2 < 1.5V Maximum reverse control input voltage Vinr 6 V 6 V		⇒ 1200V	(di/dt)g	-	4 A/μs	
Maximum off-state gate currentIo< 40 μA< 40 μAMinimum control currentIcm7 mA7 mARecommended control currentIc12 mA12 mAControl input voltage drop at 12mA gate currentVinTyp 1.2 < 1.5V	Peak gate current		lp	1.8 A	1.8 A	
Minimum control current Icm 7 mA 7 mA Recommended control current Ic 12 mA 12 mA Control input voltage drop at 12mA gate current Vin Typ 1.2 < 1.5V Typ 1.2 < 1.5V Maximum reverse control input voltage Vinr 6 V 6 V	Anode-cathode current at peak voltage Vp		In	4.4 mA	5.1 mA	
Recommended control current Ic 12 mA 12 mA Control input voltage drop at 12mA gate current Vin Typ 1.2 < 1.5V Typ 1.2 < 1.5V Maximum reverse control input voltage Vinr 6 V 6 V	Maximum off-state gate current		lo	< 40 μA	< 40 μΑ	
Control input voltage drop at 12mA gate current Vin Typ 1.2 < 1.5V Typ 1.2 < 1.5V Maximum reverse control input voltage Vinr 6 V 6 V	Minimum control current		lcm	7 mA	7 mA	
Maximum reverse control input voltage Vinr 6 V 6 V	Recommended control current		lc	12 mA	12 mA	
	Control input voltage drop at 12mA gate curre	ent	Vin	Typ 1.2 < 1.5V	Typ 1.2 < 1.5V	
	Maximum reverse control input voltage		Vinr	6 V	6 V	
Turn-on delay time at Icontrol = 12mA tdi 25 μs 25 μs	Turn-on delay time at Icontrol = 12mA		tdi	25 μs	25 μs	
Zero-crossing threshold Vzt <20 V <20 V	Zero-crossing threshold		Vzt	<20 V	<20 V	

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