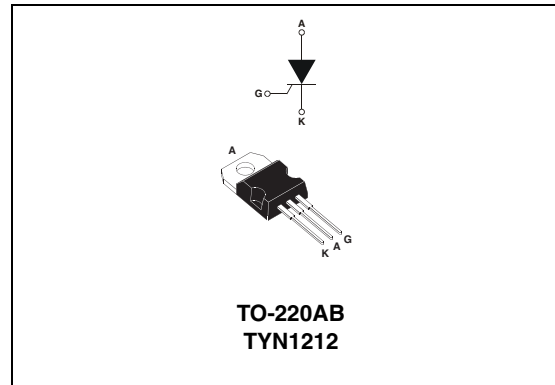


### Features

- On-state rms current 12 A
- Gate trigger current <15 mA
- Repetitive peak voltage 1200 V

### Description

The TYN1212 is suitable for state relays and high power motor control.



**Table 1. Device summary**

Symbol	Value	Unit
$I_{T(RMS)}$	12	A
$V_{DRM}/V_{RRM}$	1200	V
$I_{GT}$ (min. / max)	<15	mA

# 1 Characteristics

**Table 2. Absolute ratings (limiting values)**

Symbol	Parameter		Value	Unit	
$I_{T(RMS)}$	On-state rms current (180 °C conduction angle)		$T_c = 80\text{ °C}$	12	A
$I_{TSM}$	Non repetitive surge peak on-state current	$t_p = 10\text{ ms}$	$T_j = 25\text{ °C}$	120	A
$I^2t$	$I^2t$ Value for fusing		$t_p = 10\text{ ms}$	72	A <sup>2</sup> s
di/dt	Critical rate of rise of on-state current			100	A/μs
$V_{DRM}/V_{RRM}$	Repetitive peak off-state voltage			1200	V
$T_{stg}$ $T_j$	Storage junction temperature range Operating junction temperature range			- 40 to + 125 - 40 to + 125	°C

**Table 3. Electrical characteristics ( $T_j = 25\text{ °C}$ , unless otherwise specified)**

Symbol	Test conditions		Value	Unit	
$I_{GT}$	$V_D = 12\text{ V}$ , $R_L = 33\text{ }\Omega$ pulse duration >20 μs	$T_j = 25\text{ °C}$	MAX.	15	mA
$V_{GT}$	$V_D = 12\text{ V}$ , $R_L = 33\text{ }\Omega$ pulse duration >20 μs	$T_j = 25\text{ °C}$	MAX.	1.5	V
$V_{GD}$	$V_D = V_{DRM}$ , $R_L = 3.3\text{ k}\Omega$ pulse duration >20	$T_j = 125\text{ °C}$	MIN.	0.2	V
$I_H$	$I_T = 100\text{ mA}$ Gate open	$T_j = 25\text{ °C}$	MAX.	30	mA
dV/dt	Linear slope $V_D = 67\% V_{DRM}$ Gate open	$T_j = 125\text{ °C}$	MIN.	200	V/μs
$V_{TM}$	$I_{TM} = 24\text{ A}$ $t_p = 10\text{ ms}$	$T_j = 25\text{ °C}$	MAX.	1.6	V
$I_{DRM}$ $I_{RRM}$	$V_{DRM} = V_{RRM} = 1200\text{ V}$ gate open	$T_j = 25\text{ °C}$	MAX.	10	μA
		$T_j = 125\text{ °C}$		3	mA
$t_{gt}$	Turn-on time $I_G = 40\text{ mA}$ , $di_G/dt = 0.45\text{ A}/\mu\text{s}$ , $I_T = 24\text{ A}$ $V_{DRM}$	$T_j = 25\text{ °C}$	TYP.	2	μs
$t_q$	Circuit commutated turn-off time $I_T = 10\text{ A}$ , $V_R = 25\text{ V}$ , $di_R/dt = 30\text{ A}/\mu\text{s}$ $dV/dt = 50\text{ V}/\mu\text{s}$	$T_j = 125\text{ °C}$	TYP.	50	μs

**Table 4. Thermal resistance**

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	Junction to case (DC)	3.8	°C/W

## 2 Package information

- Epoxy meets UL94, V0
- Recommended torque value: 0.4 to 0.6 N·m
- Lead-free package

In order to meet environmental requirements, ST offers these devices in different grades of ECOPACK® packages, depending on their level of environmental compliance. ECOPACK® specifications, grade definitions and product status are available at: [www.st.com](http://www.st.com). ECOPACK® is an ST trademark.

Table 5. TO-220AB dimensions

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	15.20		15.90	0.598		0.625
a1		3.75			0.147	
a2	13.00		14.00	0.511		0.551
B	10.00		10.40	0.393		0.409
b1	0.61		0.88	0.024		0.034
b2	1.23		1.32	0.048		0.051
C	4.40		4.60	0.173		0.181
c1	0.49		0.70	0.019		0.027
c2	2.40		2.72	0.094		0.107
e	2.40		2.70	0.094		0.106
F	6.20		6.60	0.244		0.259
ØI	3.75		3.85	0.147		0.151
I4	15.80	16.40	16.80	0.622	0.646	0.661
L	2.65		2.95	0.104		0.116
I2	1.14		1.70	0.044		0.066
I3	1.14		1.70	0.044		0.066
M		2.60			0.102	

### 3 Ordering information

Table 6. Ordering information

Order code	Marking	Package	Weight	Base qty	Delivery mode
TYN1212RG	TYN1212	TO-220AB	2.3 g	50	Tube

### 4 Revision history

Table 7. Document revision history

Date	Revision	Changes
25-Nov-2011	1	First issue.

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