

**SENSITIVE AND FAST ASYMETRICAL SCR**

PRELIMINARY DATA

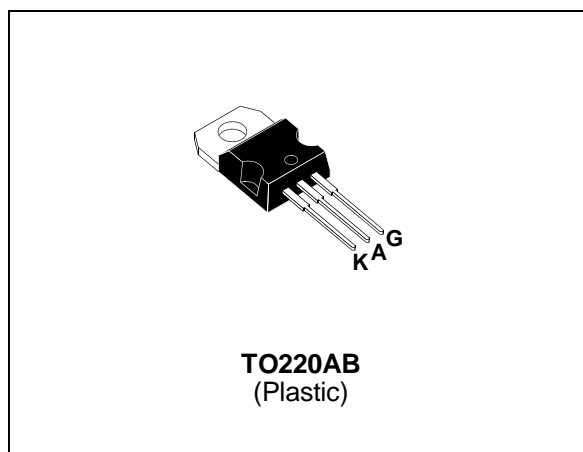
**FEATURES**

- VERY FAST SCR :  $t_q = 15\mu\text{s}$  max.
- LOW GATE TRIGGER CURRENT :  $I_{GT} = 1.5\text{mA}$  max.

**DESCRIPTION**

The TR03 brings the best compromise between a fast turn off time and a low gate trigger current for applications where fast switching and sensitive control is requested.

Packaged in TO220AB, the TR03 uses high performance planar technology.


**ABSOLUTE RATINGS** (limiting values)

Symbol	Parameter		Value	Unit
$V_{DRM}$	Repetitive peak off-state voltage		400	V
$I_{T(RMS)}$	RMS on-state current (180° conduction angle)	$T_c = 85^\circ\text{C}$	3.5	A
$I_{T(AV)}$	Average on-state current (180° conduction angle)	$T_c = 85^\circ\text{C}$	2	A
$I_{TSM}$	Non repetitive surge peak on-state current ( $T_j$ initial = 25°C)	$t_p = 10\text{ms}$	20	A
$I^2t$	$I^2t$ Value for fusing	$t_p = 10\text{ms}$	2	A <sup>2</sup> s
$di/dt$	Critical rate of rise of on-state current Gate supply $I_G = 150\text{mA}$ $di_G/dt = 1\text{A}/\mu\text{s}$		100	A/ $\mu\text{s}$
$T_{stg}$ $T_j$	Storage junction temperature range Operating junction temperature range		- 40 to + 150 - 40 to + 125	°C
TI	Maximum lead temperature for soldering during 10s at 4.5 mm from case		260	°C

**THERMAL RESISTANCES**

Symbol	Parameter	Value	Unit
$R_{th(j-a)}$	Junction to ambient	60	°C/W
$R_{th(j-c)}$	Junction to case for DC	5	°C/W

## TR03-400T

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### GATE CHARACTERISTICS (maximum values)

$P_{G(AV)} = 0.5W$       $P_{GM} = 2.5 W$  ( $t_p = 20 \mu s$ )      $I_{FGM} = 0.5 A$  ( $t_p = 20 \mu s$ )      $V_{RGM} = 5 V$

### ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Type	Value	Unit	
$I_{GT}$	$V_D = 6V$ (DC) $R_L = 100\Omega$	$T_j = 25^\circ C$	MAX	1.5	mA
$V_{GT}$	$V_D = 6V$ (DC) $R_L = 100\Omega$ $R_{GK} = 1k\Omega$	$T_j = 25^\circ C$	MAX	1.2	V
$V_{GD}$	$V_D = V_{DRM}$ $R_L = 3.3k\Omega$ $R_{GK} = 1k\Omega$	$T_j = 125^\circ C$	MIN	0.2	V
$I_H$	$I_T = 100mA$ Gate open	$T_j = 25^\circ C$	TYP	5	mA
$V_{TM}$	$I_{TM} = 10A$ $t_p = 380\mu s$	$T_j = 25^\circ C$	MAX	2.2	V
$I_{DRM}$	$V_{DRM}$ rated $R_{GK} = 1k\Omega$	$T_j = 25^\circ C$	MAX	0.01	mA
		$T_j = 125^\circ C$	MAX	0.2	
$dV/dt$	$V_D = 67\% V_{DRM}$ $R_{GK} = 1k\Omega$	$T_j = 125^\circ C$	MIN	20	V/ $\mu s$
$t_q$	$I_{TM} = 10A$ $V_R = -1V$ $dl/dt = 20 A/\mu s$ $dV/dt = 20 V/\mu s$ $V_D = 67\% V_{DRM}$ $V_{GK} = -2.5V$	$T_j = 85^\circ C$	MAX	15	$\mu s$

**PACKAGE MECHANICAL DATA**  
TO220AB(Plastic)

REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	10.0	10.4	0.393	0.409
B	15.2	15.9	0.598	0.626
C	13	14	0.511	0.551
D	6.2	6.6*	0.244	0.260
E	16.4 typ.		0.645 typ.	
F	3.5	4.2	0.137	0.165
G	2.65	2.95	0.104	0.116
H	4.4	4.6	0.173	0.181
I	3.75	3.85	0.147	0.151
J	1.23	1.32	0.048	0.051
K	1.27 typ.		0.050 typ.	
L	0.49	0.70	0.019	0.027
M	2.4	2.72	0.094	0.107
N	4.95	5.15	0.194	0.203
N1	2.40	2.70	0.094	0.106
O	1.14	1.70	0.044	0.067
P	0.61	0.88	0.024	0.034

Cooling method : C

Marking : Type number

Weight : 2.0g

Recommended torque value : 0.55 m.N.

Maximum torque value : 0.70 m.N.

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