

SENSITIVE AND FAST ASYMETRICAL SCR

PRELIMINARY DATA

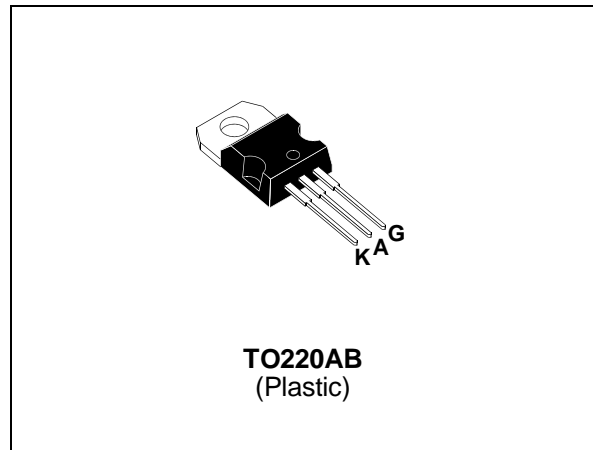
FEATURES

- 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 ² 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/ μs
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/WV
$R_{th(j-c)}$	Junction to case for DC	5	°C/W

TR03-400T

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/ μs
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	μs

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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