SGS-THOMSON MICROELECTRONICS

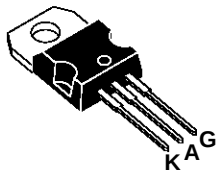
TR03-400T

SENSITIVE AND FAST ASYMETRICAL SCR

PRELIMINARY DATA

FEATURES

- VERY FAST SCR : tq = 15µs max.
- LOW GATE TRIGGER CURRENT : I_{GT} = 1.5mA max.



TO220AB
(Plastic)

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)	Tc= 85°C	3.5	A
$I_{T(AV)}$	Average on-state current (180° conduction angle)	Tc= 85°C	2	A
I_{TSM}	Non repetitive surge peak on-state current (Tj initial = 25°C)	tp = 10ms	20	A
I^2t	I^2t Value for fusing	tp = 10ms	2	A^2s
dI/dt	Critical rate of rise of on-state current Gate supply I_G = 150 mA dI_G/dt = 1 A/µs		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
Rth (j-a)	Junction to ambient	60	°C/W
Rth (j-c)	Junction to case for DC	5	°C/W

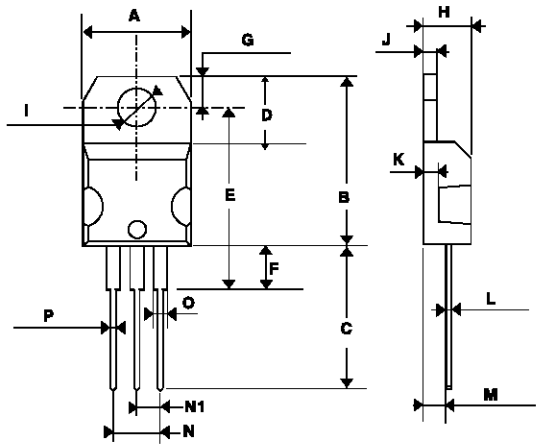
GATE CHARACTERISTICS (maximum values)

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

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions		Type	Value	Unit
I_{GT}	V_D=6V (DC) R_L=100Ω	Tj= 25°C	MAX	1.5	mA
V_{GT}	V_D=6V (DC) R_L=100Ω R_{GK} = 1kΩ	Tj= 25ÉC	MAX	1.2	V
V_{GD}	V_D=V_{DRM} R_L=3.3kΩ R_{GK} = 1 kΩ	Tj= 125°C	MIN	0.2	V
I_H	I_T= 100mA Gate open	Tj= 25°C	TYP	5	mA
V_{TM}	I_{TM}= 10A tp= 380µs	Tj= 25°C	MAX	2.2	V
I_{DRM}	V_{DRM} rated R_{GK} = 1 kΩ	Tj= 25°C	MAX	0.01	mA
		Tj= 125°C	MAX	0.2	
dV/dt	V_D=67%V_{DRM} R_{GK} = 1 kΩ	Tj= 125°C	MIN	20	V/µs
tq	I_{TM} = 10A V_R = -1V dI/dt = 20 A/µs dV/dt = 20 V/µs V_D = 67% V_{DRM} V_{GK} = -2.5V	Tj = 85°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.