

T-39-15



**TSD40N50DF**  
**TSD40N50DV**

**SGS-THOMSON N - CHANNEL ENHANCEMENT MODE FREDFET MODULE**

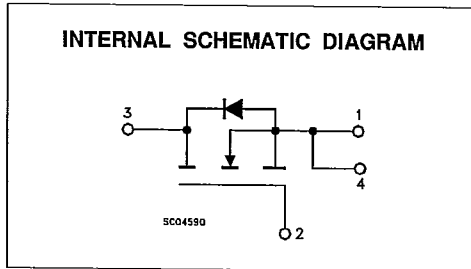
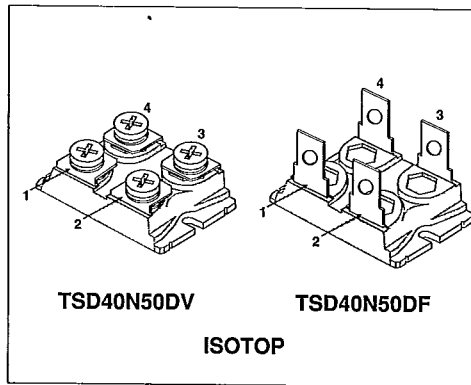
TENTATIVE DATA

TYPE	V <sub>DSS</sub>	R <sub>DS(on)</sub>	I <sub>D</sub>
TSD40N50DF/DV	500 V	0.12 Ω	40 A

- POWER MOS TRANSISTOR MODULE WITH FAST RECOVERY BULK DIODE: t<sub>rr</sub> < 300 ns @ T<sub>j</sub> = 150 °C
- HIGH CURRENT POWER MOS MODULE
- SPECIFIED COMMUTATING SOA
- PARTICULARLY SUITABLE FOR BRIDGE CONFIGURATION
- AVALANCHE RUGGEDNESS TECHNOLOGY
- VERY LOW R<sub>th</sub> JUNCTION TO CASE
- ISOLATED CASE (2500V RMS)
- EASY TO MOUNT
- LOW INTERNAL PARASITIC INDUCTANCE (TYPICALLY 5nH)

**INDUSTRIAL APPLICATIONS:**

- SMPS & UPS
- MOTOR CONTROL
- WELDING EQUIPMENT



**ABSOLUTE MAXIMUM RATINGS**

Symbol	Parameter	Value	Unit
V <sub>DS</sub>	Drain-Source Voltage (V <sub>GS</sub> = 0)	500	V
V <sub>DGR</sub>	Drain-Gate Voltage (R <sub>GS</sub> = 20 kΩ)	500	V
V <sub>GS</sub>	Gate-Source Voltage	± 20	V
I <sub>D</sub>	Drain Current (continuous) at T <sub>c</sub> = 25 °C	40	A
I <sub>D</sub>	Drain Current (continuous) at T <sub>c</sub> = 100 °C	24	A
I <sub>DM</sub> (*)	Drain Current (pulsed)	160	A
P <sub>tot</sub>	Total Dissipation at T <sub>c</sub> = 25 °C	500	W
	Derating Factor	4	W/°C
T <sub>stg</sub>	Storage Temperature	-55 to 150	°C
T <sub>j</sub>	Max. Operating Junction Temperature	150	°C
V <sub>ISO</sub>	Insulation Withstand Voltage (AC)	2500	V

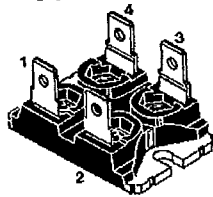
(\*) Pulse width limited by safe operating area

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PACKAGES

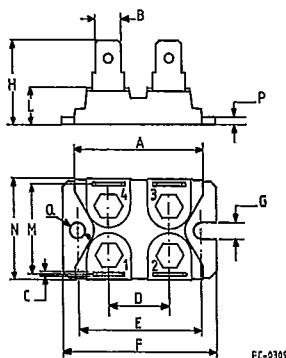
SGS-THOMSON

T-91-20



**ISOTOP**  
Fast-on version  
sales types with the suffix F

**MECHANICAL DATA**



	DIMENSIONS			
	mm		Inches	
	min.	max	min.	max
A	31.5	31.7	1.240	1.248
B	6.2	6.4	0.244	0.252
C	0.75	0.85	0.029	0.033
D	14.9	15.1	0.586	0.590
E	30.1	30.3	1.185	1.193
F	38	38.2	1.496	1.503
G	4	-	0.157	-
H	20.3	20.7	0.799	0.815
L	8.9	9.1	0.350	0.358
M	22.4	23	0.881	0.905
N	25.2	25.4	0.992	1.000
P	1.95	2.05	0.076	0.080
Q	4	-	0.157	-

**PIN CONNECTIONS**

**MOSFET**

pin 1: Source      pin 2: Gate  
pin 3: Drain      pin 4: Source sensings

**DARLINGTON**

pin 1: Emitter      pin 2: Base1  
pin 3: Collector    pin 4: Base 2

**TRANSISTOR**

pin 1: Emitter      pin 2: Base  
pin 3: Collector    pin 4: Emitter sensing

Torque: Mounting  $1.3 \pm 0.2 \text{ N} \cdot \text{m}$  (max)

Weight: Package 25.5 g

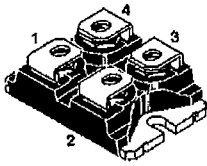
Note: The mechanical data are the same for the 3 pin version (4th pin missing)

PACKAGES

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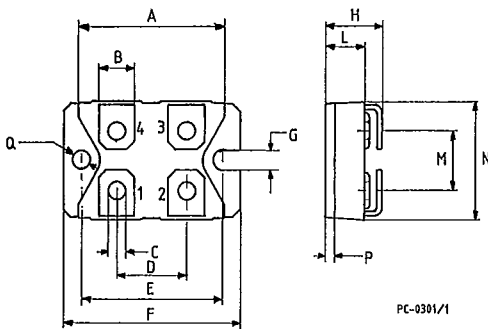
S G S-THOMSON

T-91-20



ISOTOP  
Screw version  
sales types with the suffix V

MECHANICAL DATA



	DIMENSIONS			
	mm		Inches	
	min.	max	min.	max
A	31.5	31.7	1.240	1.248
B	7.8	8.2	0.307	0.322
C	4.1	4.3	0.161	0.169
D	14.9	15.1	0.586	0.590
E	30.1	30.3	1.185	1.193
F	38	38.2	1.496	1.503
G	4	-	0.157	-
H	11.8	12.2	0.464	0.480
L	8.9	9.1	0.350	0.358
M	12.6	12.8	0.496	0.503
N	25.2	25.4	0.992	1.000
P	1.95	2.05	0.076	0.080
Q	4	-	0.157	-

PIN CONNECTIONS

MOSFET

pin 1: Source      pin 2: Gate  
pin 3: Drain      pin 4: Source sensngs

DARLINGTON

pin 1: Emitter      pin 2: Base1  
pin 3: Collector    pin 4: Base 2

TRANSISTOR

pin 1: Emitter      pin 2: Base  
pin 3: Collector    pin 4: Emitter sensing

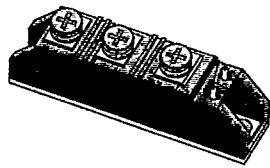
Torque: Terminal  $1.3 \pm 0.2 \text{ N} \cdot \text{m}$  (max)  
Mounting  $1.3 \pm 0.2 \text{ N} \cdot \text{m}$  (max)

Weight: Package 29 g  
4 Screws: 7.5 g

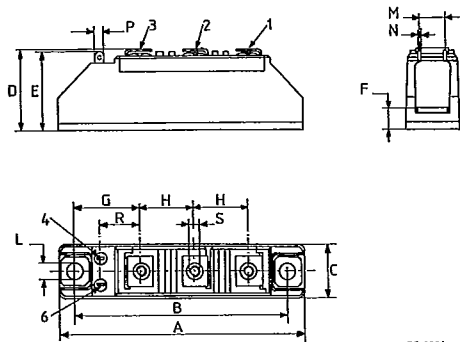
Note: The mechanical data are the same for the 3 pin version  
(4th pin missing)

T-91-20

TRANSPACK (TO-240)



MECHANICAL DATA



PC-0296

	DIMENSIONS			
	mm		Inches	
	min.	max	min.	max
A	91.5	92.5	3.602	3.641
B	79.75	80.25	3.140	3.160
C	19.5	20.55	0.767	0.809
D	29.00	31.00	1.141	1.220
E	28.8	30	1.134	1.181
F	8.5 typ.		0.334 typ.	
G	24.4 typ.		0.960 typ.	
H	19.5	20.5	0.767	0.807
L	6.2 typ.		0.244 typ.	
M	8.95	11.05	0.352	0.435
N	0.78	0.84	0.030	0.033
P	2.72	2.87	0.107	0.113
R	14	-	0.551	-
S	M5			

Torque: Terminal  $2.2 \pm 0.5 \text{ N} \cdot \text{m}$  (max)  
 Mounting  $3.5 \pm 0.5 \text{ N} \cdot \text{m}$  (max)

Weight: Package 110 g  
 Accessory 21 g

Note: The mechanical data are the same for the 2 power pin version (either pin 1 or pin 2 missing)

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