

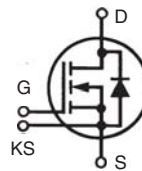
Trench Power MOSFET

Very low $R_{DS(on)}$

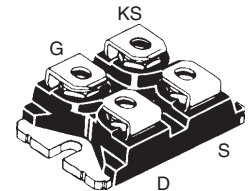
$$V_{DSS} = 100 \text{ V}$$

$$I_{D25} = 280 \text{ A}$$

$$R_{DS(on)} = 3.9 \text{ m}\Omega \text{ (typ.)}$$



SOT-227 B,
miniBLOC



G = Gate
S = Source

D = Drain
KS = Kelvin Source

Symbol	Conditions	Maximum Ratings	
V_{DSS}	$T_J = 25^\circ\text{C}$ to 150°C	100	V
V_{GS}	Continuous	± 20	V
V_{GSM}	Transient	± 30	V
I_{D25}	$T_C = 25^\circ\text{C}$	280	A
I_{D90}	$T_C = 90^\circ\text{C}$	210	A
$I_{D(RMS)}$	Package lead current limit	150	A
P_D	$T_C = 25^\circ\text{C}$	770	W
T_J		-55 ... +150	$^\circ\text{C}$
T_{JM}		175	$^\circ\text{C}$
T_{stg}		-55 ... +175	$^\circ\text{C}$
V_{ISOL}	50/60 Hz, RMS, $t = 1$ min $I_{ISOL} \leq 1$ mA, $t = 1$ s	2500 3000	V~ V~
M_d	Mounting torque Terminal connection torque	1.5/13 Nm/lb.in. 1.5/13 Nm/lb.in.	
Weight		30	g

Features

- trench MOSFET
- very low on state resistance $R_{DS(on)}$
- fast switching
- fast body diode
- industry standard outline
- isolated package
- high reliability

Applications

- automotive
- converters for fuel cells
- AC drives
- choppers to replace series dropping resistors used for motors, heaters etc.
- DC-DC converters
- electronic switches
- replacing relays and fuses
- power supplies
- solar inverters
- battery supplied systems
- choppers or inverters for motor control in hand tools
- battery chargers

Advantages

- Easy to mount
- Space savings
- High power density

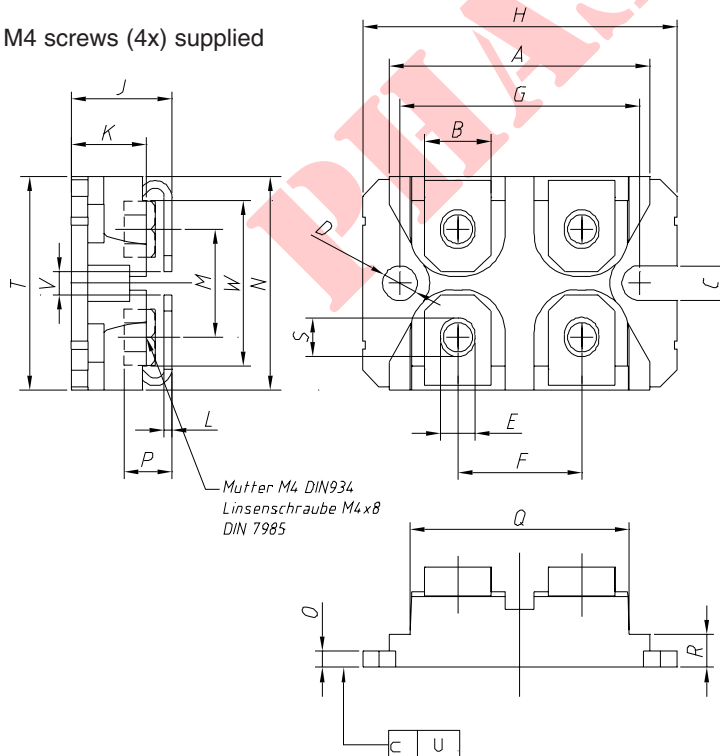
Symbol	Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
		min.	typ.	max.
$R_{DS(on)}$	$V_{GS} = 10 \text{ V}$, $I_D = 140 \text{ A}$ Pulse test, $t \leq 300 \mu\text{s}$, duty cycle $d \leq 2\%$		3.9	5 m Ω
$V_{GH(th)}$	$V_{DS} = V_{GS}$, $I_D = 4 \text{ mA}$	2		4 V
I_{DSS}	$V_{DS} = V_{DSS}$, $T_J = 25^\circ\text{C}$ $V_{GS} = 0 \text{ V}$, $T_J = 125^\circ\text{C}$			400 μA 2 mA
I_{GSS}	$V_{GS} = \pm 20 V_{DC}$, $V_{DS} = 0$			± 400 nA

Symbol	Conditions	Characteristic Values		
		(T _J = 25°C, unless otherwise specified)		
		min.	typ.	max.
g_{fs}	V _{DS} = 10 V, I _D = 100 A, pulse test		220	S
C_{ISS} C_{OSS} C_{rSS}	} V _{GS} = 0 V, V _{DS} = 25 V, f = 1 MHz		18	nF
			2.2	nF
			1.2	nF
t_{d(on)} t_r t_{d(off)} t_f	} V _{GS} = 10 V, V _{DS} = 30 V, I _D = 100 A R _G = 2.5 Ω (external)		35	ns
			85	ns
			150	ns
			70	ns
Q_{g(on)} Q_{gs} Q_{gd}	} V _{GS} = 10 V, V _{DS} = 80 V, I _D = 100 A		440	nC
			75	nC
			180	nC
R_{thJC}				0.19 K/W
R_{thCH}	with heat transfer paste		0.05	K/W

Symbol	Conditions	Characteristic Values		
		(T _J = 25°C, unless otherwise specified)		
		min.	typ.	max.
I_S	V _{GS} = 0 V			380 A
I_{SM}	Repetitive, pulse width limited by T _{JM}			570 A
V_{SD}	I _F = 280 A, V _{GS} = 0 V, Pulse test, t ≤ 300 μs, duty cycle d ≤ 2 %			1.70 V
t_{rr} I_{RM}	} I _F = 300 A, V _R = 30 V -di/dt = 400 A/μs		80	ns
				35

miniBLOC, SOT-227 B

M4 screws (4x) supplied



Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	31.50	31.88	1.240	1.255
B	7.80	8.20	.307	.323
C	4.09	4.29	.161	.169
D	4.09	4.29	.161	.169
E	4.09	4.29	.161	.169
F	14.91	15.11	.587	.595
G	30.12	30.30	1.186	1.193
H	37.80	38.23	1.489	1.505
J	11.68	12.22	.460	.481
K	8.92	9.60	.351	.378
L	0.76	0.84	.030	.033
M	12.60	12.85	.496	.506
N	25.15	25.42	.990	1.001
O	1.98	2.13	0.78	.084
P	4.95	5.97	.195	.235
Q	26.54	26.90	1.045	1.059
R	3.94	4.42	.155	.174
S	4.72	4.85	.186	.191
T	24.59	25.07	.968	.987
U	-0.05	0.10	-.002	.004
V	3.30	4.57	.130	.180
W	19.81	21.08	.780	.830

IXYS reserves the right to change limits, test conditions, and dimensions.