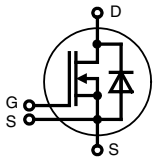
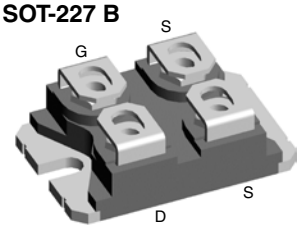
CoolMOS™ 1) Power MOSFET

V_{DSS} = 800 V
I_{D25} = 44 A
$R_{DS(on)\ max}$ = 74 mΩ

N-Channel Enhancement Mode
Low R_{DSon}, High V_{DSS} MOSFET



miniBLOC, SOT-227 B



E72873

G = Gate
S = Source
D = Drain

Either source terminal at miniBLOC can be used as main or Kelvin Source

MOSFET			
Symbol	**Conditions**	**Maximum Ratings**	
V_{DSS}	T_{VJ} = 25°C	800	V
V_{GS}		± 20	V
I_{D25}	T_C = 25°C	44	A
I_{D90}	T_C = 90°C	30	A
dv/dt	$V_{DS} < V_{DSS}$; I_F = 17 A; $\lvert di_F/dt \rvert$ < 100 Aμs	6	V/ns
E_{AS}	I_D = 4 A; L = 80 mH; T_C = 25°C	670	mJ
E_{AR}	I_D = 17 A; L = 3 mH; T_C = 25°C	0.5	mJ

Symbol	Conditions	Characteristic Values (T_{VJ} = 25°C, unless otherwise specified)			
		min.	typ.	max.	
R_{DSon}	V_{GS} = 10 V; $I_D = I_{25}$		63	74	mΩ
$V_{GS(th)}$	$V_{GS} = V_{DS}$; I_D = 4 mA	2.1		3.9	V
I_{DSS}	$V_{DS} = V_{DSS}$; V_{GS} = 0 V; T_{VJ} = 25°C			50	μA
	T_{VJ} = 125°C		200		μA
I_{GSS}	V_{GS} = ± 20 V; V_{DS} = 0 V			400	nA
Q_g	V_{GS} = 10 V; V_{DS} = 640 V; I_D = 70 A		360		nC
Q_{gs}			48		nC
Q_{gd}			184		nC
$t_{d(on)}$	V_{GS} = 10 V; V_{DS} = 400 V		25		ns
t_r	I_D = 70 A; R_G = 1.2 Ω; T_{VJ} = 125°C		15		ns
$t_{d(off)}$			75		ns
t_f			10		ns
R_{thJC}				0.33	K/W

Features

- miniBLOC package
  - Electrically isolated copper base
  - Low coupling capacitance to the heatsink for reduced EMI
  - International standard package SOT-227
  - Easy screw assembly
- CoolMOS™ 1) power MOSFET 3rd generation
  - high blocking capability
  - lowest resistance
  - avalanche rated for unclamped inductive switching (UIS)
  - low thermal resistance due to reduced chip thickness
- fast CoolMOS™ 1) power MOSFET 3rd generation
  - High blocking capability
  - Low on resistance
  - Avalanche rated for unclamped inductive switching (UIS)
  - Low thermal resistance due to reduced chip thickness
- Enhanced total power density

Applications

- Switched mode power supplies (SMPS)
- Uninterruptible power supplies (UPS)
- Power factor correction (PFC)
- Welding
- Inductive heating

1) CoolMOS™ is a trademark of Infineon Technologies AG.

Source-Drain Diode

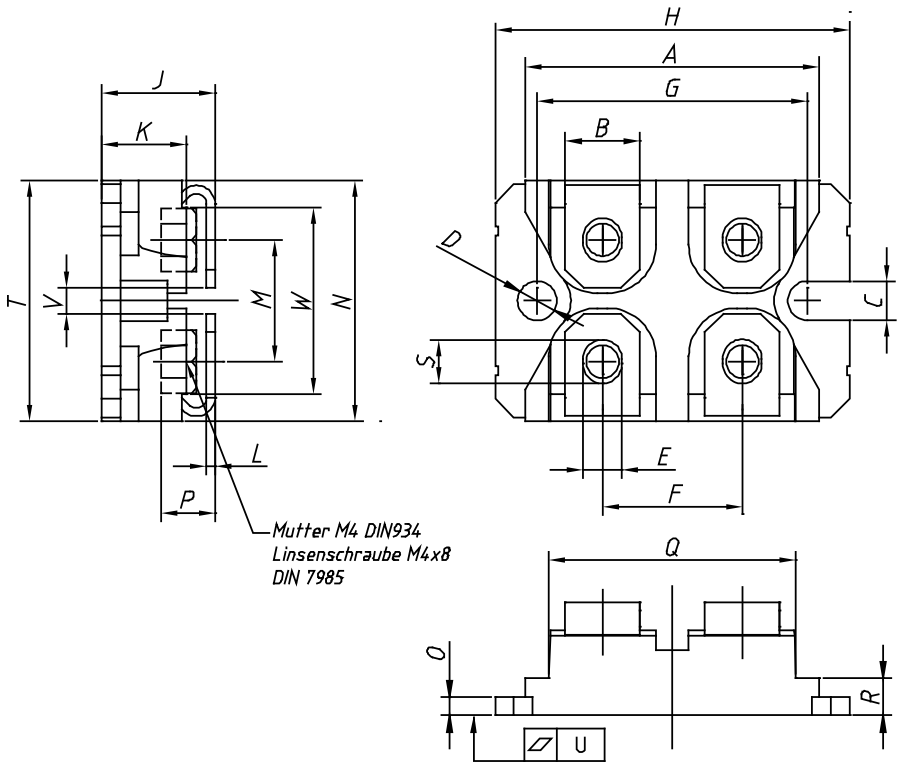
Symbol	Conditions	Characteristic Values (T_{VJ} = 25°C, unless otherwise specified)			
		min.	typ.	max.	
I_S	V_{GS} = 0 V			60	A
V_{SD}	I_F = 65 A; V_{GS} = 0 V		0.9	1.2	V
t_{rr}	I_F = 80 A; $-di_F/dt$ = 400 A/µs; V_R = 480 V		500	800	ns
Q_{RM}			45		µC
I_{RM}			280		A

Component

Symbol	Conditions	Maximum Ratings	
T_{VJ}	operating	-55...+150	°C
T_{stg}	storage	-55...+125	°C
V_{ISOL}	I_{ISOL} < 1 mA, 50/60 Hz	2500	V~
M_d	mounting torque	1.5	Nm
	terminal connection torque	1.5	Nm

Symbol	Conditions	Characteristic Values			
		min.	typ.	max.	
R_{thCH}	with heatsink compound		0.1		K/W
Weight			30		g

miniBLOC, SOT-227 B



SYM	MILLIMETERS		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	.078	.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	-.05	.10	-.002	.004
V	3.30	4.57	.130	.180
W	19.81	21.08	.780	.830

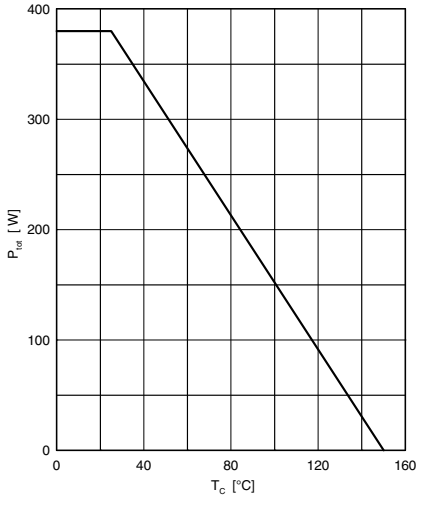


Fig. 1 Power dissipation

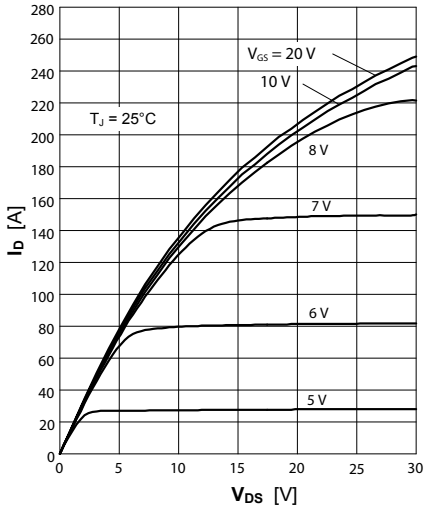


Fig. 2 Typ. output characteristics

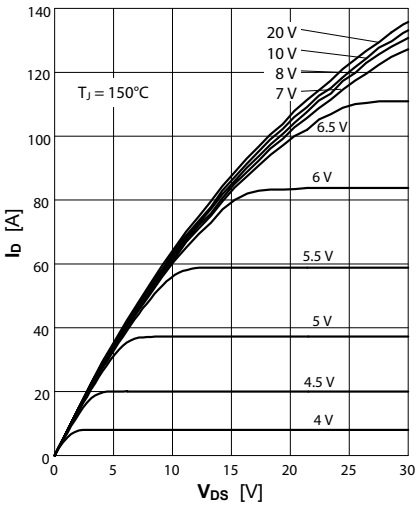


Fig. 3 Typ. output characteristics

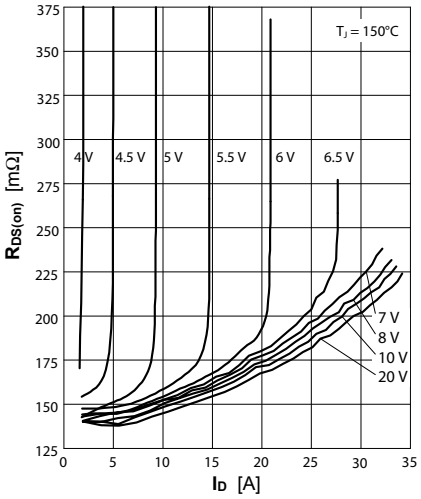


Fig. 4 Typ. drain-source on-state resistance

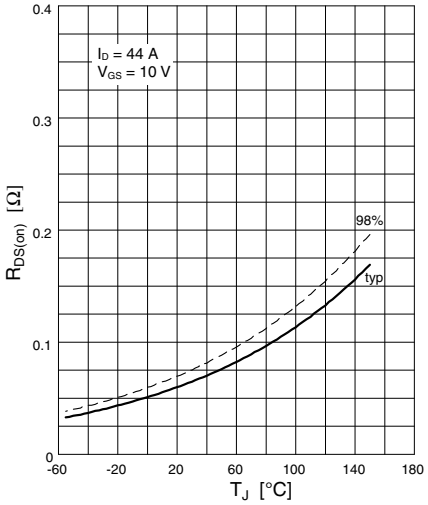


Fig. 5 Drain-source on-state resistance

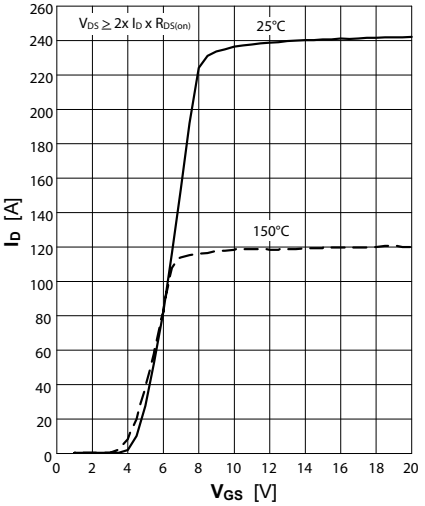


Fig. 6 Typ. transfer characteristics

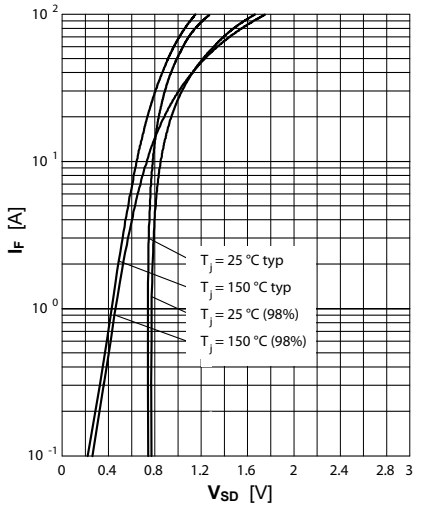


Fig. 7 Forward characteristic of reverse diode

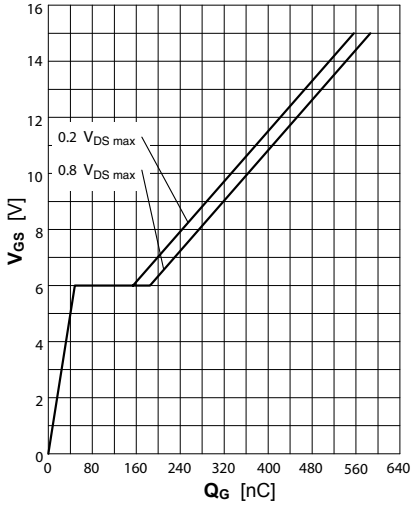


Fig. 8 Typ. gate charge

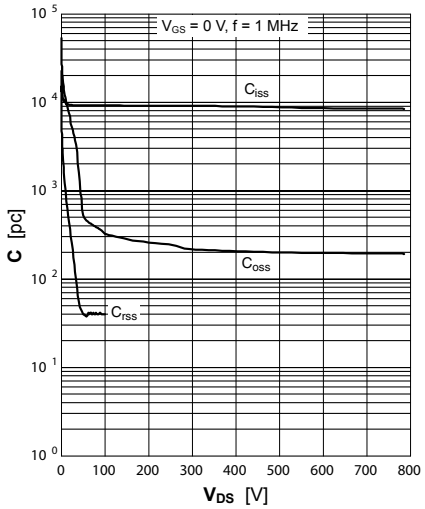


Fig. 9 Typ. capacitances

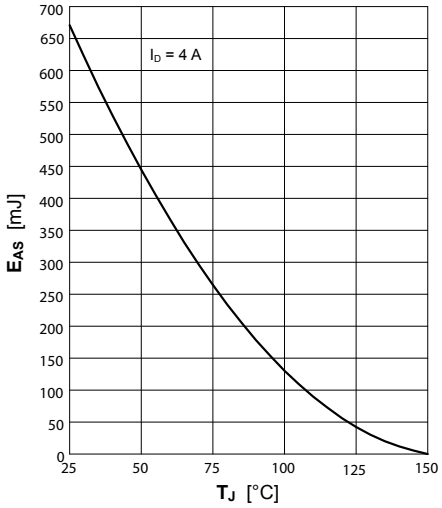


Fig. 10 Avalanche energy

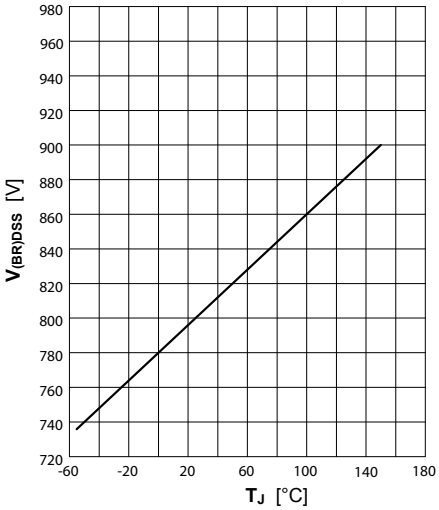


Fig. 11 Drain-source breakdown voltage

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