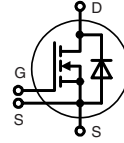


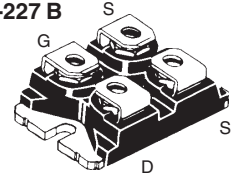
CoolMOS™ 1) Power MOSFET

N-Channel Enhancement Mode
Low $R_{DS(on)}$, High V_{DSS} MOSFET

V_{DSS}	I_{D25}	$R_{DS(on)}$
600 V	75 A	36 mΩ



miniBLOC, SOT-227 B



G = Gate D = Drain S = Source

Either source terminal at miniBLOC can be used as main or kelvin source

MOSFET			
Symbol	Conditions	Maximum Ratings	
V_{DSS}	$T_{VJ} = 25^{\circ}\text{C to } 150^{\circ}\text{C}$	600	V
V_{GS}		±20	V
I_{D25}	$T_C = 25^{\circ}\text{C}$	75	A
I_{D90}	$T_C = 90^{\circ}\text{C}$	50	A
dv/dt	$V_{DS} < V_{DSS}; I_F \leq 100\text{A}; di_F/dt \leq 100\text{A}/\mu\text{s}$ $T_{VJ} = 150^{\circ}\text{C}$	6	V/ns
E_{AS}	$I_D = 10\text{ A}; L = 36\text{ mH}; T_C = 25^{\circ}\text{C}$	1.8	J
E_{AR}	$I_D = 20\text{ A}; L = 5\ \mu\text{H}; T_C = 25^{\circ}\text{C}$	1	mJ

Features

- miniBLOC package
 - Electrically isolated copper base
 - Low coupling capacitance to the heatsink for reduced EMI
 - High power dissipation due to AlN ceramic substrate
 - International standard package SOT-227
 - Easy screw assembly
- 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

Symbol	Conditions	Characteristic Values ($T_{VJ} = 25^{\circ}\text{C}$, unless otherwise specified)		
		min.	typ.	max.
$R_{DS(on)}$	$V_{GS} = 10\text{ V}; I_D = I_{D90}$		30	36 mΩ
$V_{GS(th)}$	$V_{DS} = 20\text{ V}; I_D = 5\text{ mA}$	2.1		3.9 V
I_{DSS}	$V_{DS} = V_{DSS}; V_{GS} = 0\text{ V}; T_{VJ} = 25^{\circ}\text{C}$ $T_{VJ} = 125^{\circ}\text{C}$		100	50 μA 50 μA
I_{GSS}	$V_{GS} = \pm 20\text{ V}; V_{DS} = 0\text{ V}$			200 nA
Q_g Q_{gs} Q_{gd}	$V_{GS} = 10\text{ V}; V_{DS} = 350\text{ V}; I_D = 100\text{ A}$		500	nC
			50	nC
			240	nC
$t_{d(on)}$ t_r $t_{d(off)}$ t_f	$V_{GS} = 10\text{ V}; V_{DS} = 380\text{ V};$ $I_D = 100\text{ A}; R_G = 1\ \Omega$		20	ns
			30	ns
			110	ns
			10	ns
V_F	(reverse conduction) $I_F = 37.5\text{ A}; V_{GS} = 0\text{ V}$		0.9	1.1 V
R_{thJC}				0.22 K/W

Applications

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

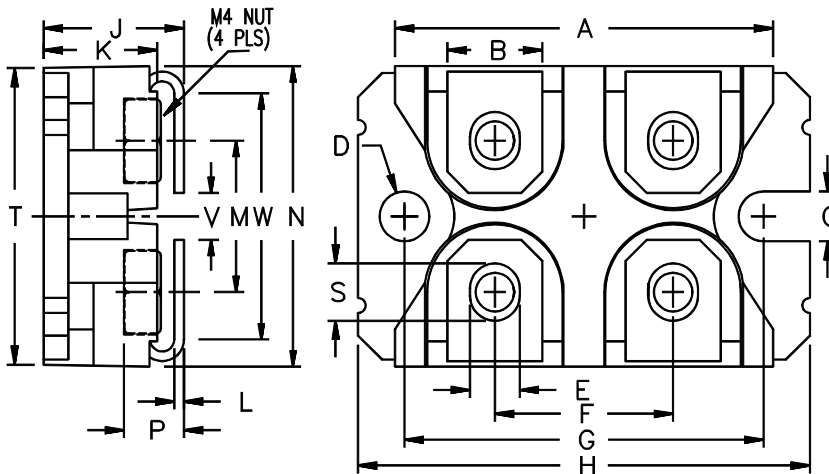
¹⁾CoolMOS™ is a trademark of Infineon Technologies AG.

Component

Symbol	Conditions	Maximum Ratings	
V_{ISOL}	$I_{ISOL} \leq 1 \text{ mA}; 50/60 \text{ Hz}$	2500	V~
T_{VJ}		-40...+150	°C
T_{stg}		-40...+125	°C
M_d	mounting torque	1.5	Nm
	terminal connection torque (M4)	1.5	Nm

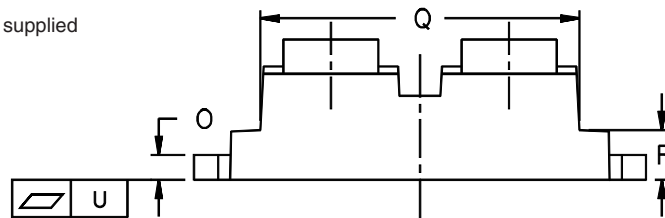
Symbol	Conditions	Characteristic Values		
		min.	typ.	max.
R_{thCH}	with heatsink compound		0.1	K/W
Weight			30	g

miniBLOC, SOT-227 B



Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	31.50	31.88	1.240	1.255
B	7.80	8.20	0.307	0.323
C	4.09	4.29	0.161	0.169
D	4.09	4.29	0.161	0.169
E	4.09	4.29	0.161	0.169
F	14.91	15.11	0.587	0.595
G	30.12	30.30	1.186	1.193
H	37.80	38.20	1.489	1.505
J	11.68	12.22	0.460	0.481
K	8.92	9.60	0.351	0.378
L	0.76	0.84	0.030	0.033
M	12.60	12.85	0.496	0.506
N	25.15	25.42	0.990	1.001
O	1.98	2.13	0.078	0.084
P	4.95	5.97	0.195	0.235
Q	26.54	26.90	1.045	1.059
R	3.94	4.42	0.155	0.174
S	4.72	4.85	0.186	0.191
T	24.59	25.07	0.968	0.987
U	-0.05	0.1	-0.002	0.004
V	3.30	4.57	0.130	0.180
W	0.780	0.830	19.81	21.08

M4 screws (4x) supplied



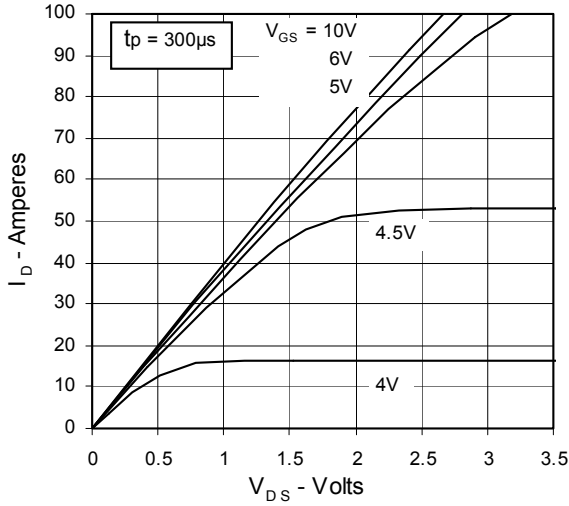


Fig. 1 Typical output characteristics $I_D = f(V_{DS})$

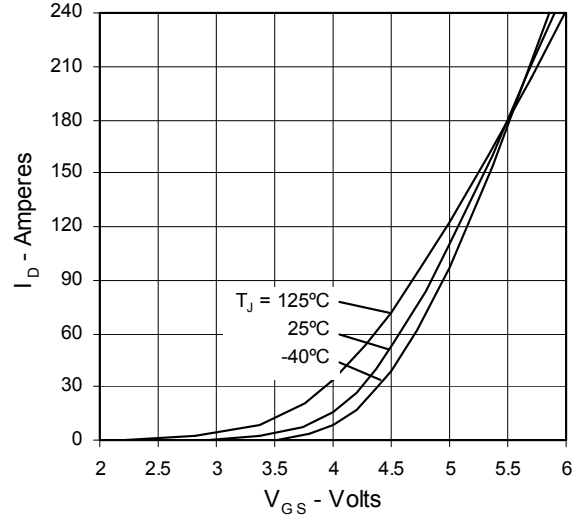


Fig. 2 Typical transfer characteristics $I_D = f(V_{GS})$

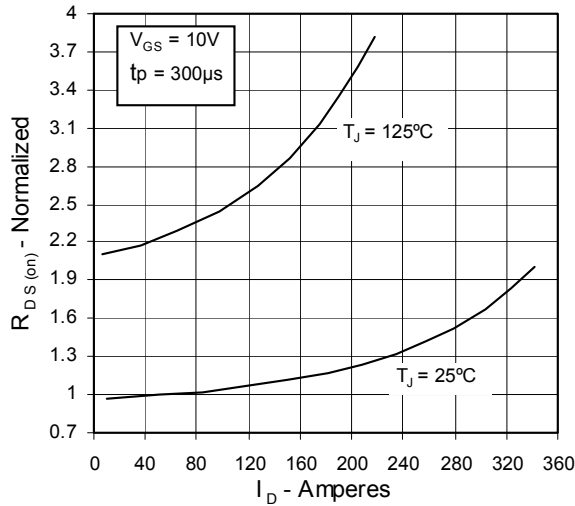


Fig. 3 Typical normalized $R_{DS(on)} = f(I_D)$

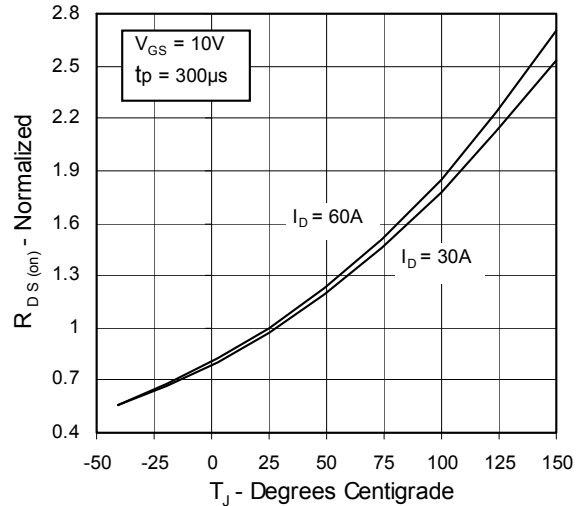


Fig. 4 Typical normalized $R_{DS(on)} = f(T_J)$

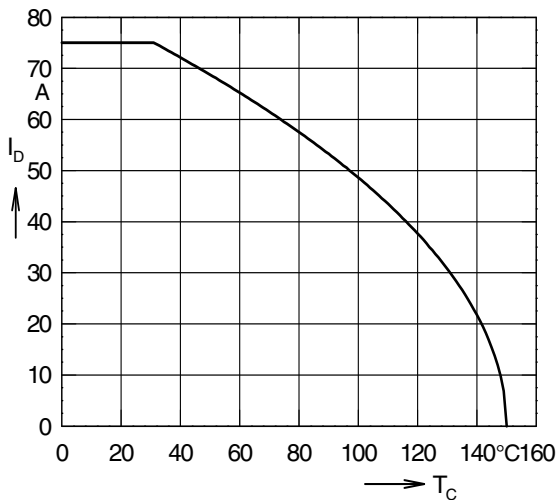


Fig. 5 Continuous drain current $I_D = f(T_C)$

Fig. 6 Typical normalized $V_{DSS} = f(T_J)$, $V_{GS(th)} = f(T_J)$

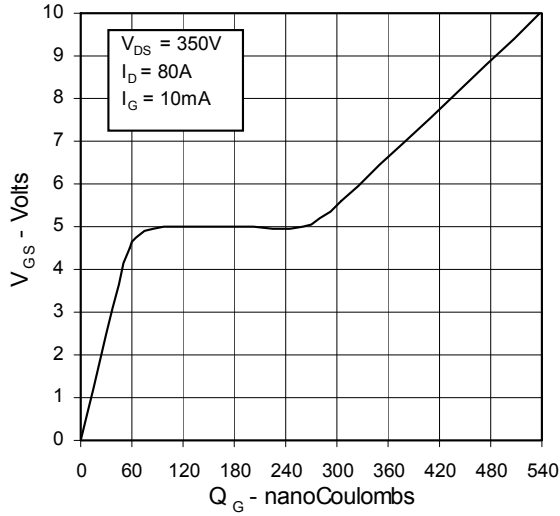


Fig. 7 Typical turn-on gate charge characteristics

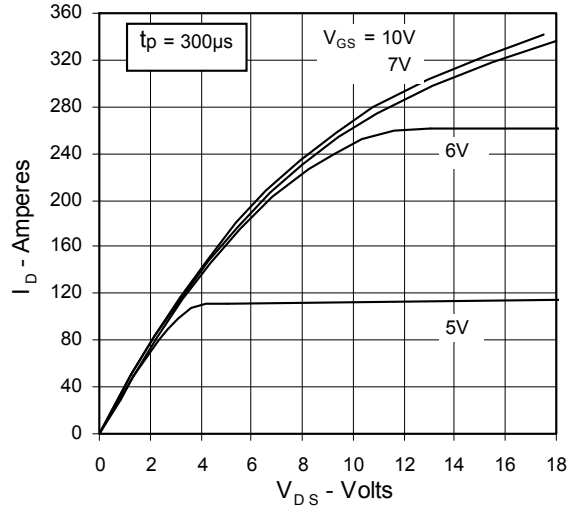


Fig. 8 Forward Safe Operating Area, $I_D = f(V_{DS})$

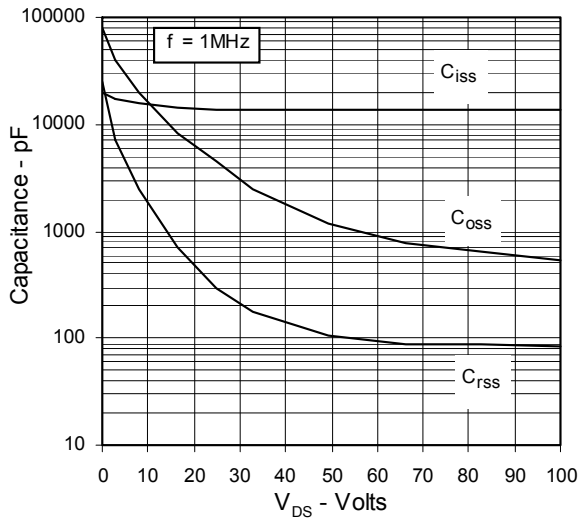


Fig. 9 Typical capacitances $C = f(V_{DS})$, $f = 1 \text{ MHz}$

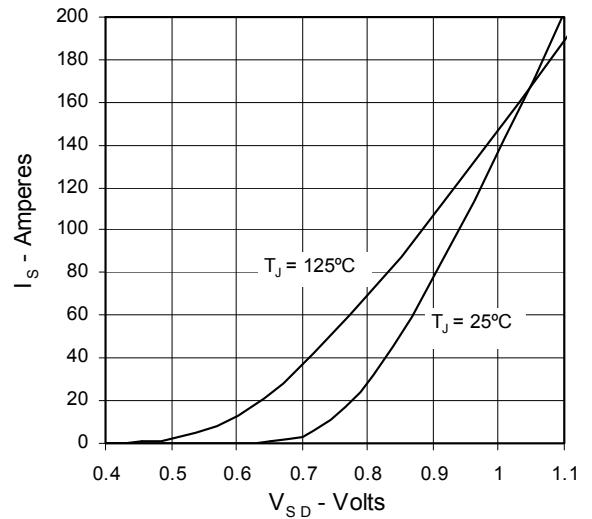


Fig. 10 Typ. forward characteristics of reverse diode, $I_S = f(V_{SD})$

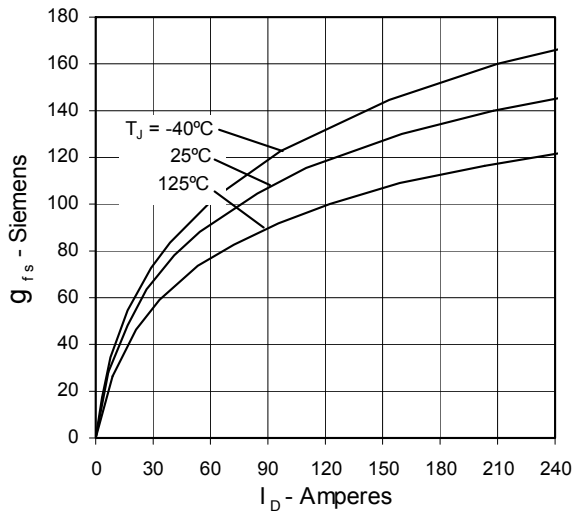


Fig. 11 Typical transconductance $g_{rs} = f(I_D)$

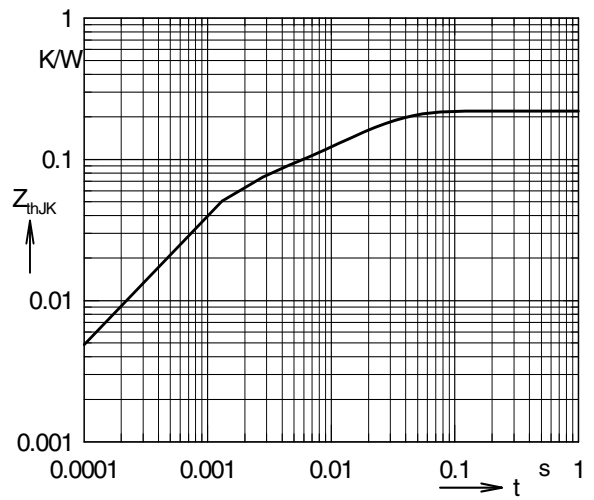


Fig. 12 Transient thermal resistance $Z_{thJK} = f(t_p)$