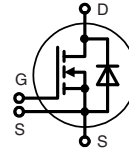
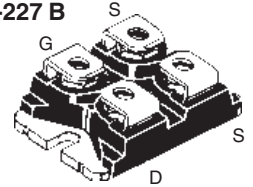


# CoolMOS™ 1) Power MOSFET

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

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


**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
$E_{AR}$	$I_D = 20\text{ A}; L = 5\text{ }\mu\text{H}; T_C = 25^{\circ}\text{C}$	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 3<sup>rd</sup> 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 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
$t_{d(on)}$ $t_r$ $t_{d(off)}$ $t_f$	} $V_{GS} = 10\text{ V}; V_{DS} = 380\text{ V};$ $I_D = 100\text{ A}; R_G = 1\text{ }\Omega$		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

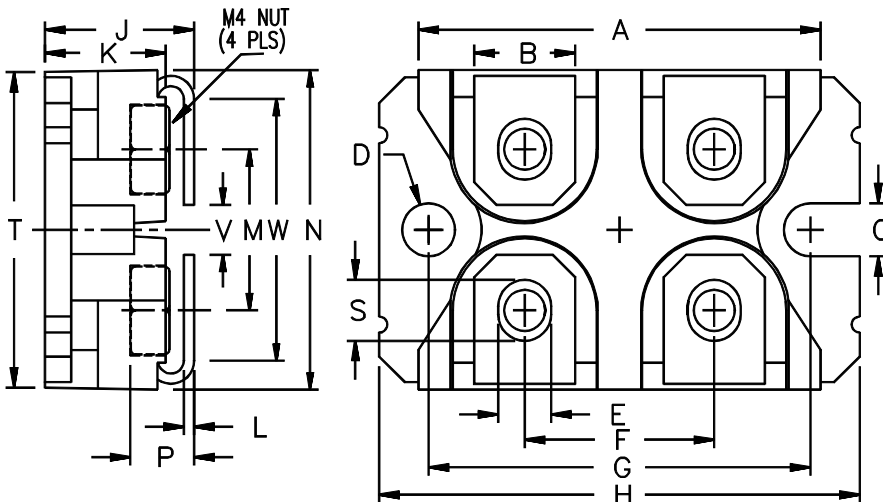
- Switched mode power supplies (SMPS)
- Uninterruptible power supplies (UPS)
- Power factor correction (PFC)
- Welding
- Inductive heating

<sup>1)</sup> CoolMOS™ is a trademark of Infineon Technologies AG.

**Component**

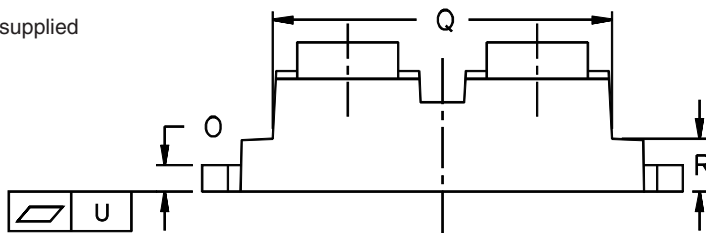
Symbol	Conditions	Maximum Ratings	
$V_{ISOL}$	$I_{ISOL} \leq 1 \text{ mA}; 50/60 \text{ Hz}$	2500	V~
$T_{VJ}$		-40...+150	°C
$T_{stg}$		-40...+125	°C
$M_d$	mounting torque	1.5	Nm
	terminal connection torque (M4)	1.5	Nm

Symbol	Conditions	Characteristic Values		
		min.	typ.	max.
$R_{thCH}$	with heatsink compound		0.1	K/W
<b>Weight</b>			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	0.031	0.033

M4 screws (4x) supplied



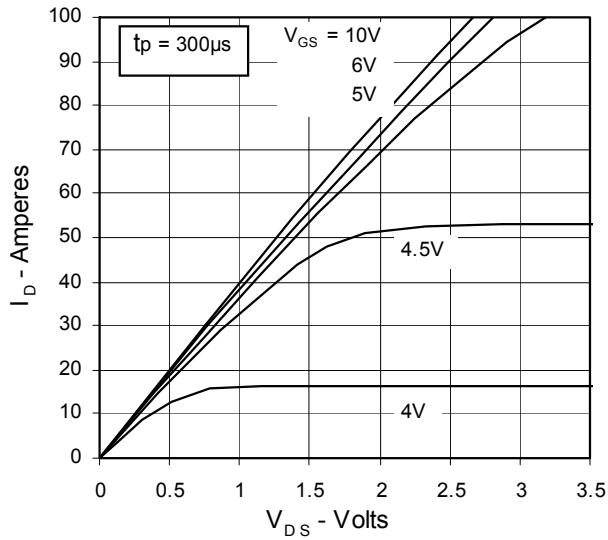


Fig. 1 Typical output characteristics  $I_D = f(V_{DS})$

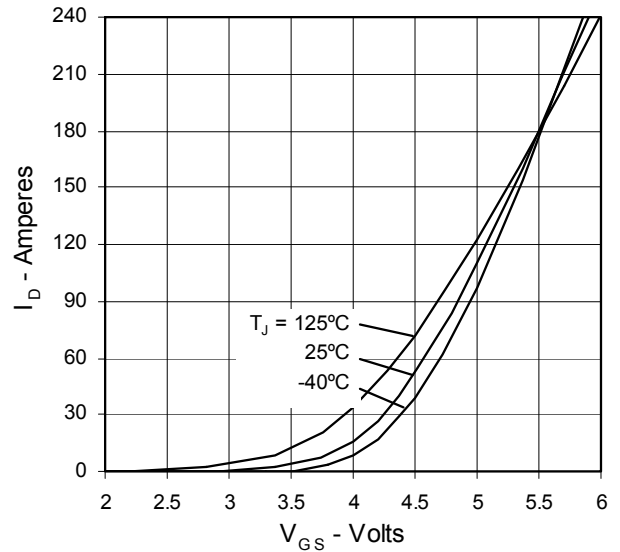


Fig. 2 Typical transfer characteristics  $I_D = f(V_{GS})$

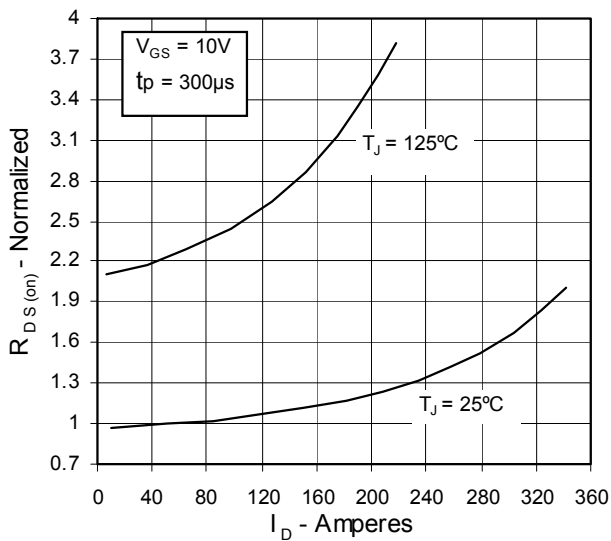


Fig. 3 Typical normalized  $R_{DS(on)} = f(I_D)$

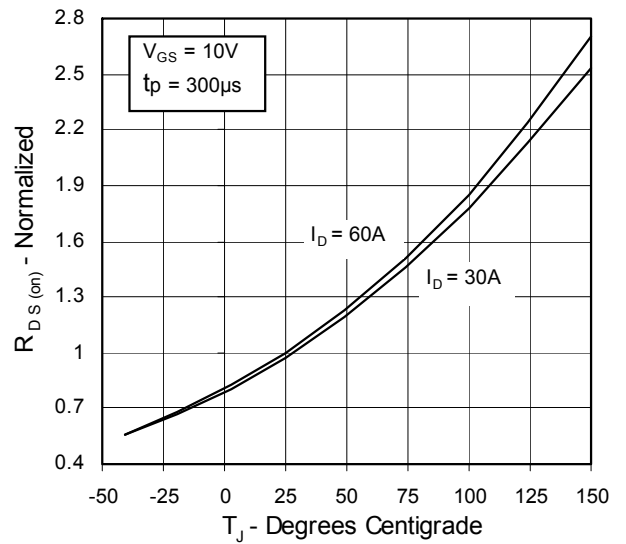


Fig. 4 Typical normalized  $R_{DS(on)} = f(T_J)$

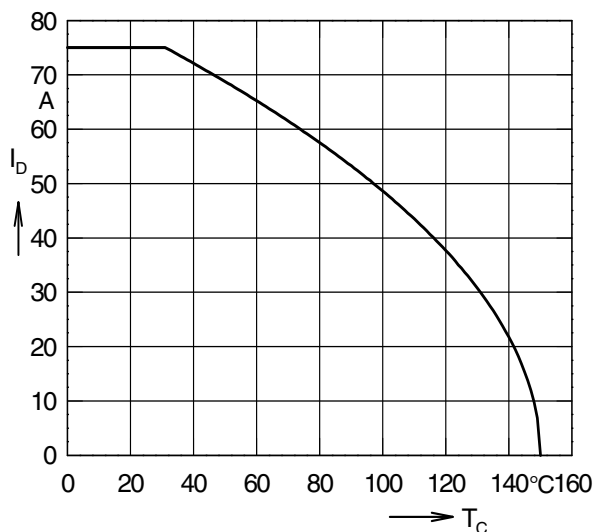


Fig. 5 Continuous drain current  $I_D = f(T_C)$

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

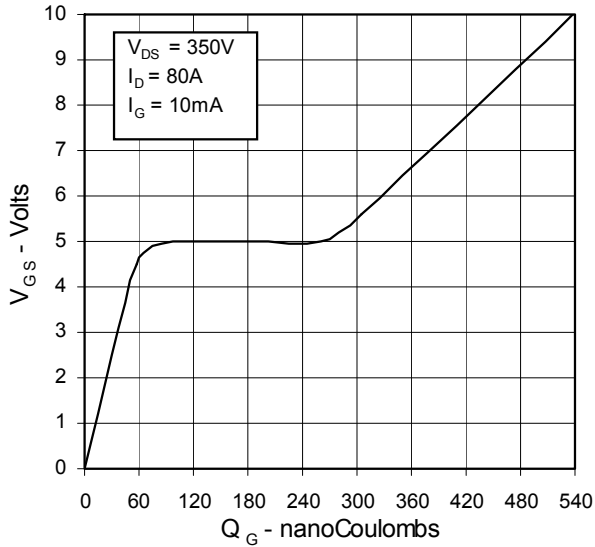


Fig. 7 Typical turn-on gate charge characteristics

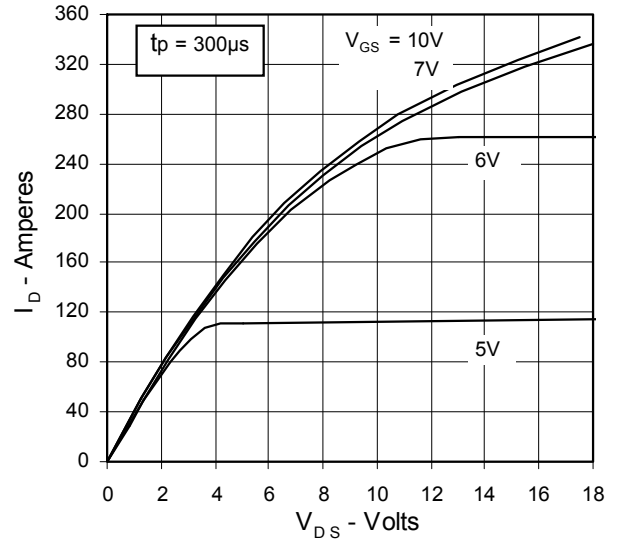


Fig. 8 Forward Safe Operating Area,  $I_D = f(V_{DS})$

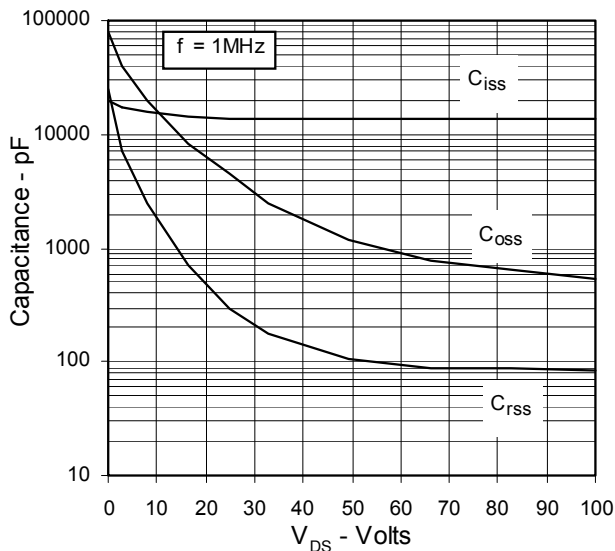


Fig. 9 Typical capacitances  $C = f(V_{DS})$ ,  $f = 1 \text{ MHz}$

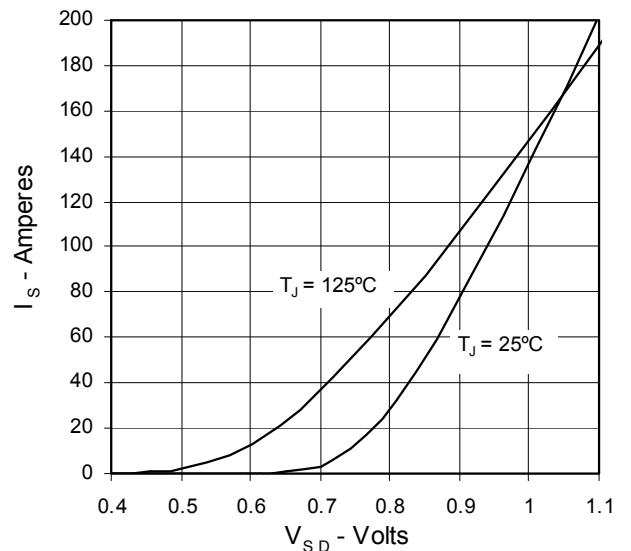


Fig. 10 Typ. forward characteristics of reverse diode,  $I_S = f(V_{SD})$

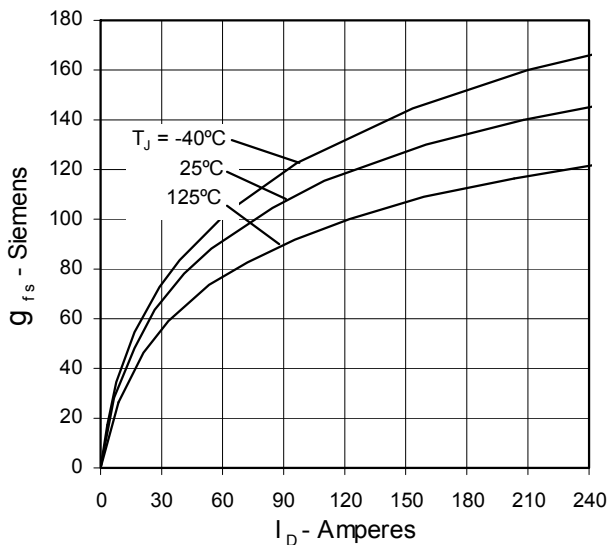


Fig. 11 Typical transconductance  $g_{fs} = f(I_D)$

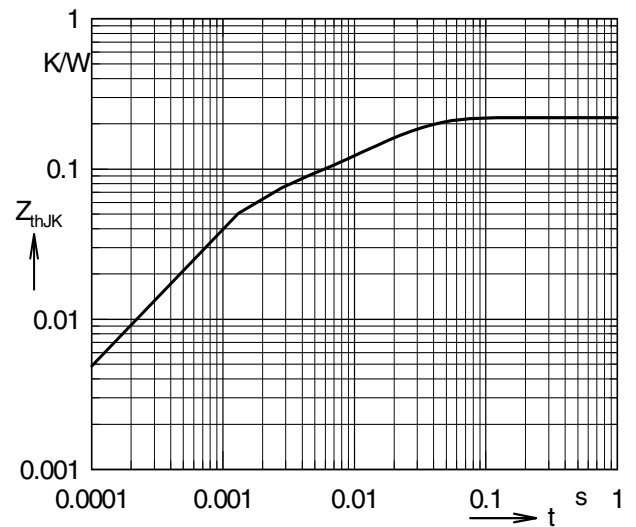


Fig. 12 Transient thermal resistance  $Z_{thJK} = f(t_p)$