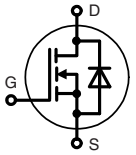
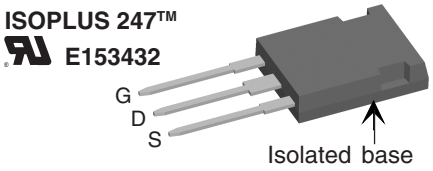
CoolMOS™ [1] Power MOSFET in ISOPLUS247™ Package

V_{DSS}	I_{D25}	$R_{DS(on)}$
600 V	38 A	70 mΩ

N-Channel Enhancement Mode
Low R_{DSon}, High V_{DSS} MOSFET
Package with Electrically Isolated Base

Preliminary data





G = Gate D = Drain S = Source

MOSFET

Symbol	Conditions	Maximum Ratings	
V_{DSS}	T_{VJ} = 25°C to 150°C	600	V
V_{GS}		±20	V
I_{D25}	T_C = 25°C	38	A
I_{D90}	T_C = 90°C	25	A
dv/dt	$V_{DS} < V_{DSS}$; $I_F \le 50A$; $\lvert di_F/dt \rvert \le 100A/\mu s$; T_{VJ} = 150°C	6	V/ns
E_{AS}	I_D = 10 A; L = 36 mH; T_C = 25°C	1.8	J
E_{AR}	I_D = 20 A; L = 5 µH; T_C = 25°C	1	mJ

Symbol	Conditions	Characteristic Values (T_{VJ} = 25°C, unless otherwise specified) min.	typ.	max.	
R_{DSon}	V_{GS} = 10 V; $I_D = I_{D90}$			70	mΩ
V_{GSth}	V_{DS} = 20 V; I_D = 3 mA;	2.1		3.9	V
I_{DSS}	$V_{DS} = V_{DSS}$; V_{GS} = 0 V; T_{VJ} = 25°C			25	µA
	T_{VJ} = 125°C		60		µA
I_{GSS}	V_{GS} = ±20 V; V_{DS} = 0 V			100	nA
Q_g	V_{GS}= 10 V; V_{DS} = 350 V; I_D = 50 A		250		nC
Q_{gs}			25		nC
Q_{gd}			120		nC
$t_{d(on)}$	V_{GS}= 10 V; V_{DS} = 380 V; I_D = 50 A; R_G = 1.8 Ω		20		ns
t_r			30		ns
$t_{d(off)}$			110		ns
t_f			10		ns
V_F	(reverse conduction) I_F = 20 A; V_{GS} = 0 V		0.9	1.1	V
R_{thJC}				0.45	K/W

Features

- ISOPLUS247™ package with DCB Base
  - Electrical isolation towards the heatsink
  - Low coupling capacitance to the heatsink for reduced EMI
  - High power dissipation
  - High temperature cycling capability of chip on DCB
  - JEDEC TO-247AD compatible
  - Easy clip 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

Applications

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

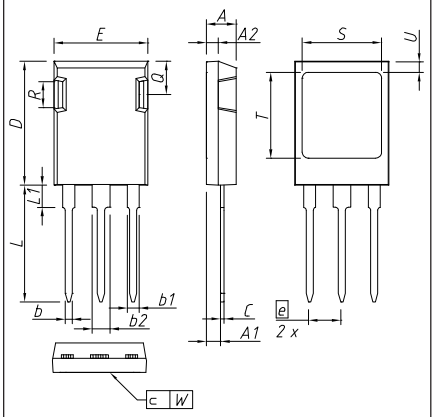
[1] CoolMOS™ is a trademark of Infineon Technologies AG.

Component

Symbol	Conditions	Maximum Ratings	
V_{ISOL}	$I_{ISOL} \leq 1$ mA; 50/60 Hz	2500	V~
T_{VJ}		-40...+150	°C
T_{stg}		-40...+125	°C
T_L	1.6 mm from case for 10 s	300	°C
F_C	mounting force with clip	20 ... 120	N

Symbol	Conditions	Characteristic Values min.	typ.	max.
C_p	coupling capacity between shorted pins and mounting tab in the case		30	pF
R_{thCH}	with heatsink compound		0.25	K/W
Weight			6	g

ISOPLUS247™ OUTLINE



DIM.	MILLIMETER		INCHES	
	MIN	MAX	MIN	MAX
A	4,83	5,21	0,190	0,205
A1	2,29	2,54	0,090	0,100
A2	1,91	2,16	0,075	0,085
b	1,14	1,40	0,045	0,055
b1	1,91	2,15	0,075	0,085
b2	2,92	3,20	0,115	0,126
C	0,61	0,83	0,024	0,033
D	20,80	21,34	0,819	0,840
E	15,75	16,13	0,620	0,635
e	5,45 BSC		0,215 BSC	
L	19,81	20,60	0,780	0,811
L1	3,81	4,38	0,150	0,172
Q	5,59	6,20	0,220	0,244
R	4,32	4,85	0,170	0,191
S	13,21	13,72	0,520	0,540
T	15,75	16,26	0,620	0,640
U	1,65	2,03	0,065	0,080
W	-	0,10	-	0,004

The convex bow of substrate is typ. < 0.04 mm over plastic surface level of device bottom side
This drawing will meet all dimensions requirement of JEDEC outline TO-247 AD except screw hole and except Lmax.