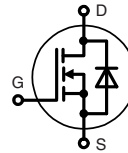


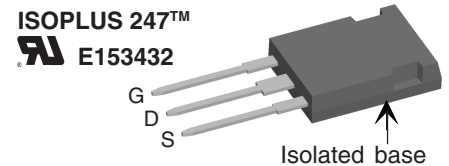
# CoolMOS™ 1) Power MOSFET in ISOPLUS247™ Package

N-Channel Enhancement Mode  
Low  $R_{DS(on)}$ , High  $V_{DSS}$  MOSFET  
Package with Electrically Isolated Base

Preliminary data



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



G = Gate    D = Drain    S = 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
$I_{D25}$	$T_C = 25^{\circ}\text{C}$	38	A
$I_{D90}$	$T_C = 90^{\circ}\text{C}$	25	A
$dv/dt$	$V_{DS} < V_{DSS}; I_F \leq 50\text{A};  di_F/dt  \leq 100\text{A}/\mu\text{s}$ $T_{VJ} = 150^{\circ}\text{C}$	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

- 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 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

### 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.

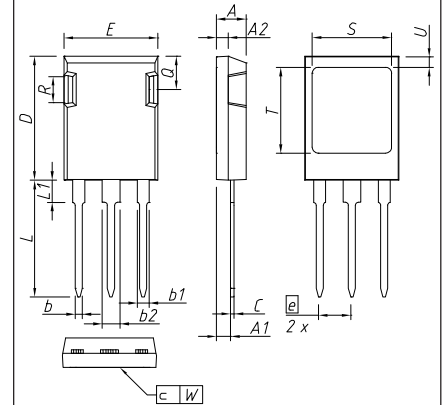
Symbol	Conditions	Characteristic Values ( $T_{VJ} = 25^{\circ}\text{C}$ , unless otherwise specified)		
		min.	typ.	max.
$R_{DS(on)}$	$V_{GS} = 10\text{ V}; I_D = I_{D90}$			70 mΩ
$V_{GS(th)}$	$V_{DS} = 20\text{ V}; I_D = 3\text{ mA};$	2.1		3.9 V
$I_{DSS}$	$V_{DS} = V_{DSS}; V_{GS} = 0\text{ V}; T_{VJ}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

### 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
$T_L$	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
<b>Weight</b>			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.



---

Disclaimer Notice - Information furnished is believed to be accurate and reliable. However, users should independently evaluate the suitability of and test each product selected for their own applications. Littelfuse products are not designed for, and may not be used in, all applications. Read complete Disclaimer Notice at [www.littelfuse.com/disclaimer-electronics](http://www.littelfuse.com/disclaimer-electronics).