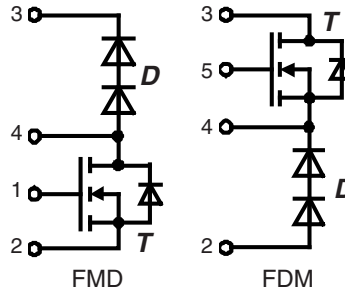


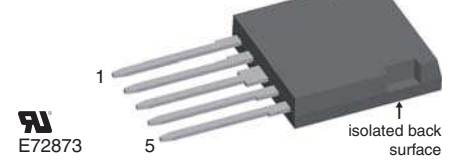
CoolMOS™¹⁾ Power MOSFET with HiPerDyn™ FRED Buck and Boost Topologies

Electrically isolated back surface
2500 V electrical isolation
N-Channel Enhancement Mode
Low $R_{DS(on)}$, high V_{DSS} MOSFET
Ultra low gate charge



$$\begin{aligned} I_{D25} &= 15 \text{ A} \\ V_{DSS} &= 600 \text{ V} \\ R_{DS(on) \text{ max}} &= 0.165 \Omega \end{aligned}$$

ISOPLUS i4™



MOSFET T			
Symbol	Conditions	Maximum Ratings	
V_{DSS}	$T_{VJ} = 25^\circ\text{C}$	600	V
V_{GS}		± 20	V
I_{D25}	$T_C = 25^\circ\text{C}$	15	A
I_{D90}	$T_C = 90^\circ\text{C}$	11	A
E_{AS} E_{AR}	single pulse repetitive } $I_D = 7.9 \text{ A}; T_C = 25^\circ\text{C}$	522 0.79	mJ mJ
dV/dt	MOSFET dV/dt ruggedness $V_{DS} = 0 \dots 480 \text{ V}$	50	V/ns

Symbol	Conditions	Characteristic Values			
		$(T_{VJ} = 25^\circ\text{C}, \text{ unless otherwise specified})$			
		min.	typ.	max.	
$R_{DS(on)}$	$V_{GS} = 10 \text{ V}; I_D = 12 \text{ A}$		150	165	m Ω
$V_{GS(th)}$	$V_{DS} = V_{GS}; I_D = 0.79 \text{ mA}$	2.5	3	3.5	V
I_{DSS}	$V_{DS} = 600 \text{ V}; V_{GS} = 0 \text{ V}$ $T_{VJ} = 25^\circ\text{C}$ $T_{VJ} = 125^\circ\text{C}$		10	1	μA μA
I_{GSS}	$V_{GS} = \pm 20 \text{ V}; V_{DS} = 0 \text{ V}$			100	nA
C_{iss} C_{oss}	$V_{GS} = 0 \text{ V}; V_{DS} = 100 \text{ V}$ $f = 1 \text{ MHz}$		2000 100		pF pF
Q_g Q_{gs} Q_{gd}	$V_{GS} = 0 \text{ to } 10 \text{ V}; V_{DS} = 400 \text{ V}; I_D = 12 \text{ A}$		40 9 13	52	nC nC nC
$t_{d(on)}$ t_r $t_{d(off)}$ t_f E_{on} E_{off} $E_{rec off}$	$V_{GS} = 10 \text{ V}; V_{DS} = 400 \text{ V}$ $I_D = 12 \text{ A}; R_G = 3.3 \Omega$		12 5 50 5 tbd tbd tbd		ns ns ns ns mJ mJ mJ
R_{thJC} R_{thCH}	with heat transfer paste		0.35	1.1	K/W K/W

Features

- Silicon chip on Direct-Copper-Bond substrate
 - high power dissipation
 - isolated mounting surface
 - 2500 V electrical isolation
 - low drain to tab capacitance ($< 40 \text{ pF}$)
- Fast CoolMOS™¹⁾ power MOSFET 4th generation
 - high blocking capability
 - lowest resistance
 - avalanche rated for unclamped inductive switching (UIS)
 - low thermal resistance due to reduced chip thickness
- Enhanced total power density
- HiPerDyn™ FRED
 - consisting of series connected diodes
 - enhanced dynamic behaviour for high frequency operation

Applications

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

Advantages

- Easy assembly: no screws or isolation foils required
- Space savings
- High power density
- High reliability

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

MOSFET T Source-Drain Diode

Symbol	Conditions	Characteristic Values			
		(T _{VJ} = 25°C, unless otherwise specified)			
		min.	typ.	max.	
I _S	V _{GS} = 0 V			12	A
V _{SD}	I _F = 12 A; V _{GS} = 0 V		0.9	1.2	V
t _{rr}	I _F = 12 A; -di _F /dt = 100 A/μs; V _R = 400 V		390		ns
Q _{RM}			7.5		μC
I _{RM}			38		A

Diode D (data for series connection)

Symbol	Conditions	Maximum Ratings			
V _{RRM}	T _{VJ} = 25°C to 150°C			600	V
I _{F25}	T _C = 25°C			15	A
I _{F90}	T _C = 90°C			8	A
Symbol	Conditions	Characteristic Values			
		min.	typ.	max.	
V _F	I _F = 15 A	T _{VJ} = 25°C		2.50	V
	I _F = 30 A			3.00	V
	I _F = 15 A	T _{VJ} = 150°C		2.00	A
	I _F = 30 A			2.55	A
I _R	V _R = V _{RRM}	T _{VJ} = 25°C		1	μA
		T _{VJ} = 150°C		0.08	mA
I _{FSM}	t = 10 ms (50 Hz), sine;	T _{VJ} = 45°C		150	A
I _{RM}	I _F = 20 A; V _R = 100 V; -di _F /dt = 200 A/μs	T _{VJ} = 25°C		3	A
t _{rr}				35	ns
R _{thJC}	with heat transfer paste			2.4	K/W
R _{thJH}			0.8		K/W

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~
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		40		pF
d _S , d _A	pin - pin	1.7			mm
d _S , d _A	pin - backside metal	5.5			mm
Weight			9		g

Technical drawing of a 5-pin D-sub connector showing three views: front, side, and top views. Dimensions are in millimeters.

- Front View (Top):** Shows the connector's profile with a total height of 35.6 mm. The main body height is 15.55 mm, and the pin height is 17.3 mm. The pin pitch is 2.54 mm.
- Side View (Middle):** Shows the connector's side profile with a total width of 5.03 mm. The main body width is 0.6 mm, and the pin width is 2.81 mm.
- Top View (Bottom):** Shows the connector's top profile with a total width of 19.91 mm. The main body width is 20.88 mm, and the pin width is 20.32 mm. The pin pitch is 2.31 mm. The pin diameter is 1.22 mm, and the pin spacing is 7.62 mm. The total pin width is 15.24 mm.