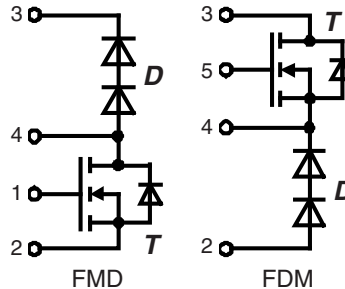


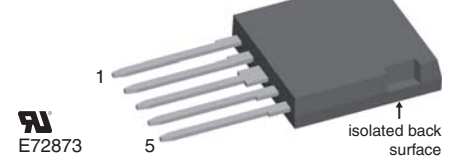
CoolMOS™¹⁾ Power MOSFET with HiPerDyn™ FRED Buck and Boost Topologies

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



$$\begin{aligned} I_{D25} &= 47 \text{ A} \\ V_{DSS} &= 600 \text{ V} \\ R_{DS(on) \text{ max}} &= 0.045 \Omega \end{aligned}$$

ISOPLUS i4™



MOSFET T				
Symbol	Conditions	Maximum Ratings		
V_{DSS}	$T_{VJ} = 25^\circ\text{C}$	600		V
V_{GS}		± 20		V
I_{D25}	$T_C = 25^\circ\text{C}$	47		A
I_{D90}	$T_C = 90^\circ\text{C}$	32		A
E_{AS}	single pulse repetitive } $I_D = 11 \text{ A}; T_C = 25^\circ\text{C}$	1950		mJ
E_{AR}		3		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.	
$R_{DS(on)}$	$V_{GS} = 10 \text{ V}; I_D = 44 \text{ A}$		40	45	m Ω
$V_{GS(th)}$	$V_{DS} = V_{GS}; I_D = 3 \text{ mA}$	2.5	3	3.5	V
I_{DSS}	$V_{DS} = V_{DSS}; V_{GS} = 0 \text{ V}$				μA
	$T_{VJ} = 25^\circ\text{C}$			10	μA
	$T_{VJ} = 125^\circ\text{C}$		50		μA
I_{GSS}	$V_{GS} = \pm 20 \text{ V}; V_{DS} = 0 \text{ V}$			100	nA
C_{iss}	$V_{GS} = 0 \text{ V}; V_{DS} = 100 \text{ V}$ $f = 1 \text{ MHz}$		6800		pF
C_{oss}			320		pF
Q_g	$V_{GS} = 0 \text{ to } 10 \text{ V}; V_{DS} = 400 \text{ V}; I_D = 44 \text{ A}$		150	190	nC
Q_{gs}			35		nC
Q_{gd}			50		nC
$t_{d(on)}$	$V_{GS} = 10 \text{ V}; V_{DS} = 400 \text{ V}$ $I_D = 44 \text{ A}; R_G = 3.3 \Omega$		30		ns
t_r			20		ns
$t_{d(off)}$			100		ns
t_f			10		ns
E_{on}			tbd		mJ
E_{off}			tbd		mJ
$E_{rec off}$			tbd		mJ
R_{thJC}	with heat transfer paste			0.45	K/W
R_{thCH}		0.25			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			44	A
V _{SD}	I _F = 44 A; V _{GS} = 0 V		0.9	1.2	V
t _{rr}	I _F = 44 A; -di _F /dt = 100 A/μs; V _R = 400 V		600		ns
Q _{RM}			17		μC
I _{RM}			60		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			95	A
I _{F90}	T _C = 90°C			56	A
Symbol	Conditions	Characteristic Values			
		min.	typ.	max.	
V _F	I _F = 30 A	T _{VJ} = 25°C		2.48	V
	I _F = 60 A			3.02	V
	I _F = 30 A	T _{VJ} = 150°C		1.89	A
	I _F = 60 A			2.45	A
I _R	V _R = V _{RRM}	T _{VJ} = 25°C		1	μA
		T _{VJ} = 150°C		0.2	mA
I _{FSM}	t = 10 ms (50 Hz), sine;	T _{VJ} = 45°C		450	A
I _{RM}	I _F = 30 A; V _R = 100 V; -di _F /dt = 200 A/μs	T _{VJ} = 25°C		2	A
t _{rr}				30	ns
R _{thJC}	with heat transfer paste			0.55	K/W
R _{thCH}			0.25		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 width of 17.3 mm and a height of 55.51 mm. The pin array is 65.5 mm high.
- Side View (Middle):** Shows the connector's side profile with a total height of 5.03 mm. The pin array is 2.81 mm high, and the body is 0.6 mm thick.
- Top View (Bottom):** Shows the connector's top profile with a total width of 19.91 mm and a total height of 20.88 mm. The pin array is 20.32 mm high. The pin array is 7.62 mm wide, and the body is 1.22 mm wide. The pin array is 2.31 mm from the body.



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