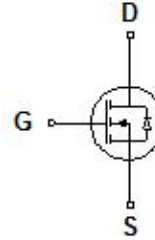
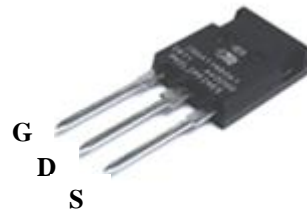


PRELIMINARY DATASHEET
**600V 2X31A, Parallel N-Channel Enhancement Mode
CoolMOS™ Power MOSFET in Extended TO247 Package**
APPLICATIONS

- Consumer SMPS
- Telecom power supplies
- PC silver box
- Server power supplies
- Solar inverter
- Welding inverter
- Induction heating
- Electronic ballast


FEATURES

- High dv/dt rated
- High peak current capability
- Low gate charge
- Low capacitances
- Ultra low $R_{DS(on)} < 0.05 \Omega$
- Pb-free finished; **RoHS compliant**


MAXIMUM RATINGS, $T_c = 25^\circ\text{C}$ unless otherwise noted

Parameter	Symbol	Value	Units
Drain-Source voltage	V_{DSS}	600	V
Gate-Source voltage AC ($f > 1 \text{ Hz}$)	V_{GS}	+/- 30	
Continuous drain current $T_c = 25^\circ\text{C}$ $T_c = 100^\circ\text{C}$	I_D	62 38	A
Pulsed drain current, Note 1	I_{Dpulse}	186	
Repetitive avalanche current, Note 1 and 2	I_{AR}	22	
Repetitive avalanche energy, Note 1 and 2 $I_D = 22\text{A}, V_{DD} = 50\text{V}$	E_{AR}	1.2	mJ
Single-pulsed avalanche energy $I_D = 22\text{A}, V_{DD} = 50\text{V}$	E_{AS}	800	
MOSFET dv/dt ruggedness $V_{DS} = 0..480\text{V}$	dv/dt	50	V/ns
Reverse diode dv/dt	dv/dt	15	
Operating junction and storage temperature	T_j, T_{stg}	-55 to +150	$^\circ\text{C}$

Thermal Characteristics

Parameter	Symbol	Max. Value	Units
Characteristics			
Thermal resistance, junction to case	R_{thJC}	0.25	$^\circ\text{C} / \text{W}$

Electrical Characteristics, at $T_C = 25^\circ\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Value			Unit
			Min.	Typ.	Max.	
Static Characteristics						
Drain-source breakdown voltage	BV_{DSS}	$V_{GS} = 0V, I_D = 500\mu A$	600	-	-	V
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 2.4mA$	2.5	3.0	3.5	
Drain-source diode forward voltage	V_{SD}	$V_{GS} = 0V, I_F = 36A$	-	0.9	1.2	V
Zero gate voltage drain current	I_{DSS}	$V_{GS} = 0V, V_{DS} = 600V$ $T_C = 25^\circ\text{C}$ $T_C = 150^\circ\text{C}$	- -	- 100	10 -	μA
Gate-source leakage current	I_{GSS}	$V_{GS} = 20V, V_{DS} = 0V$	-	-	200	nA

Static drain-source On-resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 36A$ $T_C = 25^\circ\text{C}$ $T_C = 150^\circ\text{C}$	- -	0.045 0.12	0.05 -	Ω
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Dynamic Characteristics

Input capacitance	C_{iss}	$V_{DS} = 100V,$ $V_{GS} = 0V,$	-	5600	-	pF
Output capacitance	C_{oss}	$f = 1.0\text{ MHz}$	-	260	-	

Switching Characteristics, at $T_C = 25^\circ\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Value			Unit
			Min.	Typ.	Max.	
Turn-on delay time	$t_{d(on)}$	$V_{DD} = 400V, I_D = 36A,$ $V_{GS} = 10V, R_G = 3.3\Omega$	-	13	-	ns
Rise time	t_r		-	7	-	
Turn-off delay time	$t_{d(off)}$		-	78	-	
Fall time	t_f		-	7	-	
Gate charge	Q_g	$V_{DD} = 400V, I_D = 36A,$ $V_{GS} = 0\text{ to }10V$	-	120	-	nC
Gate-source charge	Q_{gs}		-	28	-	
Gate-drain charge	Q_{gd}		-	40	-	

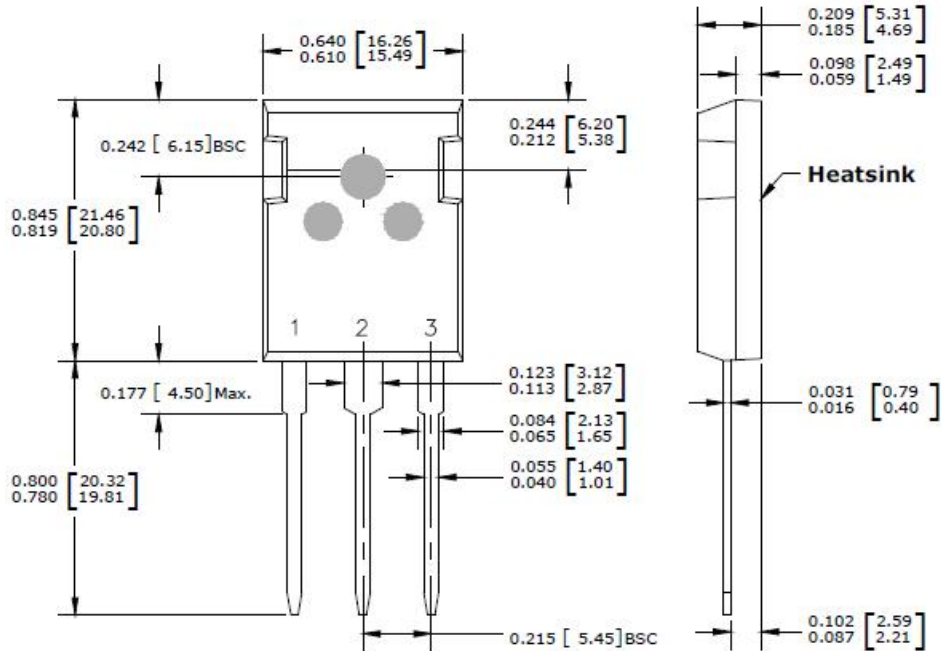
Drain-Source Diode Characteristics, at $T_C = 25^\circ\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Value			Unit
			Min.	Typ.	Max.	
Reverse recovery time	t_{rr}	$V_R = 400V, I_S = I_F = 36A$ $di_F/dt = 100A/\mu s$	-	585	-	ns
Reverse recovery charge	Q_{rr}		-	24	-	μC
Peak reverse recovery current	I_{rm}		-	140	-	A

Notes:

1. Pulse width limited by maximum junction temperature
2. Repetitive avalanche causes power losses that can be calculated as $P_{AV} = E_{AR} \cdot f$

Package Outline Drawing



CoolMOS™ is a registered trademark of Infineon Technologies AG.

CAUTION: These devices are ESD sensitive. Use proper handling procedure.

Disclaimer

These specifications may not be considered as a guarantee of components characteristics. Components have to be tested depending on intended application as adjustments may be necessary. The use of **iQXPRZ Power Inc.** components in life support appliances and systems are subject to written approval of **iQXPRZ Power Inc.**