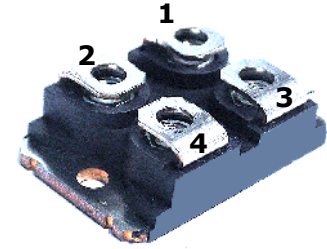
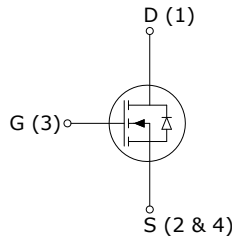


PRELIMINARY DATASHEET
**900V/ 31A N-Channel CoolMOS™
In SOT227 Package**

- Extreme dv/dt rated
- High peak current capability
- Low gate charge
- Pb-free lead finish; RoHS compliant


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

Parameter	Symbol	Value	Units
Drain-Source voltage	V_{DSS}	900V	V
Gate-Source voltage AC ($f > 1$ Hz)	V_{GS}	± 30	
Continuous drain current $T_C = 25^\circ\text{C}$ $T_C = 100^\circ\text{C}$	I_D	31 20	A
Drain current – pulsed ¹	$I_{D,pulse}$	96	
Single-pulsed avalanche energy $I_D = 8.8\text{A}$, $V_{DD} = 50\text{V}$	E_{AS}	1940	mJ
Repetitive avalanche energy, Note 1 and 2 $I_D = 8.8\text{A}$, $V_{DD} = 50\text{V}$	E_{AR}	2.9	
Repetitive avalanche current, Note 1 and 2	I_{AR}	8.8	A
MOSFET dv/dt ruggedness $V_{DS} = 0..400\text{V}$	dV/dt	50	V/ns
Operating junction and storage temperature	T_j, T_{stg}	-55... +150	$^\circ\text{C}$

Thermal and Isolation Characteristics

Parameter	Symbol	Max. Value	Units
Characteristics			
Thermal resistance, junction to case	R_{thJC}	0.39	$^\circ\text{C} / \text{W}$
Isolation voltage, RMS (measured between terminals and mounting base, 50-60 Hz, for 1-3 seconds)	V_{iso}	3000	V

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}	$V_{GS} = 0\text{V}$, $I_D = 250\mu\text{A}$	900	-	-	V
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 2.9\text{mA}$	2.5	3.0	3.5	
Zero gate voltage drain current	I_{DSS}	$V_{GS} = 0\text{V}$, $V_{DS} = 900\text{V}$	-	-	10	μA
Gate-source leakage current	I_{GSS}	$V_{GS} = 20\text{V}$, $V_{DS} = 0\text{V}$	-	-	100	nA
Static drain-source On-resistance	$R_{DS(on)}$	$V_{GS} = 10\text{V}$, $I_D = 26\text{A}$ $T_C = 25^\circ\text{C}$ $T_C = 150^\circ\text{C}$	-	0.10	0.12	Ω
			-	0.27	-	
Dynamic Characteristics						
Input capacitance	C_{iss}	$V_{DS} = 100\text{V}$, $V_{GS} = 0\text{V}$, $f = 1.0\text{MHz}$	-	6800	-	pF
Output capacitance	C_{oss}		-	330	-	

SWITCHING CHARACTERISTICS

Parameter	Symbol	Conditions	Value			Unit
			Min.	Typ.	Max.	
Turn-on delay time	$t_{d(on)}$	$V_{DD}=400V,$ $I_D=26A,$ $V_{GS}=10V,$ $R_G=7.3\Omega$	-	70	-	ns
Rise time	t_r		-	20	-	
Turn-off delay time	$t_{d(off)}$		-	400	-	
Fall time	t_f		-	25	-	
Gate charge	Q_g	$V_{DD} = 400V,$ $I_D = 26A,$ $V_{GS} = 0 \text{ to } 10V$	-	270	-	nC
Gate-source charge	Q_{gs}		-	32	-	
Gate-drain charge	Q_{gd}		-	115	-	

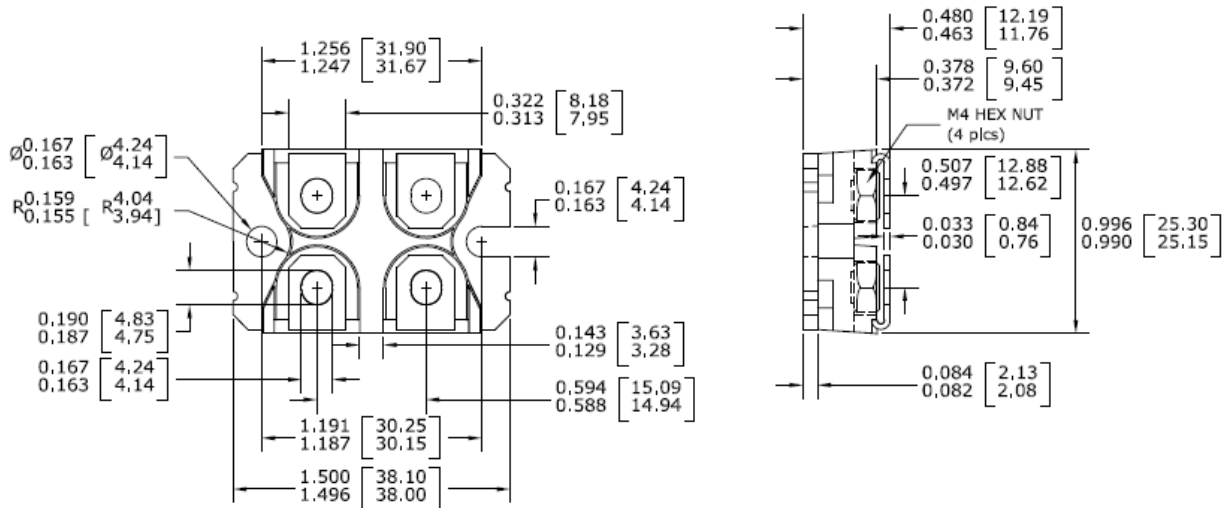
Drain-Source Diode Characteristics and Maximum Ratings

Parameter	Symbol	Conditions	Value			Unit
			Min.	Typ.	Max.	
Drain-source diode forward voltage	V_{SD}	$V_{GS} = 0V, I_F = 26A$	-	0.8	1.2	V
Reverse recovery time	t_{rr}	$V_R = 400V, I_S = I_F$ $di_F/dt = 100A/\mu s$	-	920	-	ns
Reverse recovery charge	Q_{rr}		-	30	-	μC
Peak reverse recovery current	I_{rm}		-	65	-	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.**