MaxPower Semiconductor

MXP6006CT Preliminary Datasheet

60V N-Channel MOSFET

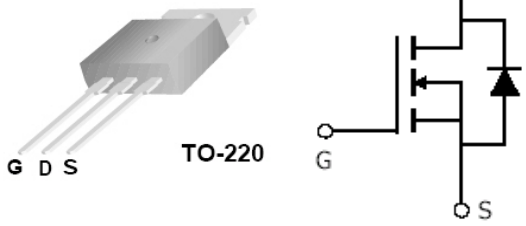
Applications:

- **Power Supply**
- **DC-DC Converters**

V_{DSS}	$R_{DS(ON)}$ (Max)	I_D[a]
60 V	6.0 mΩ	116 A

Features:

- **LeadFree**
- **Low $R_{DS(ON)}$ to Minimize Conductive Loss**
- **Low Gate Change for Fast Switching Application**
- **Optimized B_{VDSS} Capability**



Ordering Information

Part Number	Package	Brand
MXP6006CT	TO220	MXP

Absolute Maximum Ratings

T_c=25℃ unless otherwise specified

Symbol	Parameter	Value	Units
V_{DS}	Drain-to-Source Voltage	60	V
I_D[a]	Continuous Drain Current (T_C=25℃)	116	A
I_{DM}	Pulsed Drain Current @V_G=10V	463	
E_{AS}	Single Pulse Avalanche Energy (L=11.9mH)	960	mJ
T_J and T_{STG}	Operating Junction and Storage Temperature Range	-55 to 175	℃

a. Calculated continuous current based upon maximum allowable junction temperature, +175℃. Package limitation current is 80A.

OFF Characteristics

T_J=25℃ unless otherwise specified

Symbol	Parameter	Min	Typ	Max	Units	Test Conditions
BV_{DSS}	Drain-to-Source Breakdown Voltage	60			V	V_{GS}=0V, I_D=250μA
I_{DSS}	Drain-to-Source Leakage Current			1	μA	V_{DS}=48V, V_{GS}=0V
				100		V_{DS}=48V, V_{GS}=0V T_J=125 ℃
I_{GSS}	Gate-to-Source Forward Leakage			100	nA	V_{GS}=+20V
	Gate-to-Source Reverse Leakage			100		V_{GS}= -20V

ON Characteristics

T_J=25℃ unless otherwise specified

Symbol	Parameter	Min	Typ	Max	Units	Test Conditions
$R_{DS(ON)}$	Static Drain-to-Source On-Resistance			6	mΩ	V_{GS}= 10V, I_D=24A
$V_{GS(TH)}$	Gate Threshold Voltage	2		4	V	V_{DS}=V_{GS}, I_D=250μA

Dynamic Characteristics

Essentially independent of operating temperature

Symbol	Parameter	Min	Typ	Max	Units	Test Conditions
C_{iss}	Input Capacitance		4073		pF	V_{GS}=0V, V_{DS}=25V, f=1.0MHz
C_{oss}	Output Capacitance		522			
C_{rss}	Reverse Transfer Capacitance		181			
Q_g	Total Gate Charge		61		nC	V_{DD}=30V, I_D=58A, V_G=10V
Q_{gs}	Gate-to-Source Charge		26			
Q_{gd}	Gate-to-Drain (“Miller”) Charge		18			
$t_{d(on)}$	Turn-on Delay Time		17		ns	V_{DD}=30V, I_D=58A, V_G=10V, R_G=2.5Ω
t_r	Rise Time		52			
$t_{d(off)}$	Turn-off Delay Time		38			
t_f	Fall Time		14			

Source-Drain Diode Characteristics

Tc=25℃ unless otherwise specified

Symbol	Parameter	Min	Typ	Max	Units	Test Conditions
V_{SD}	Diode Forward Voltage			1.2	V	I_S=24A, V_{GS}=0V

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