N-channel 60V, 60A, TO-220 Power MOSFET 功率场效应管

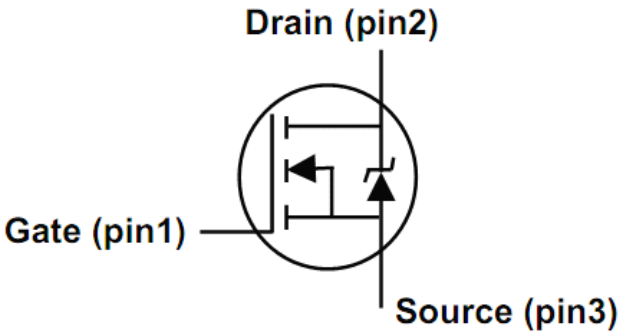
■Features 特點

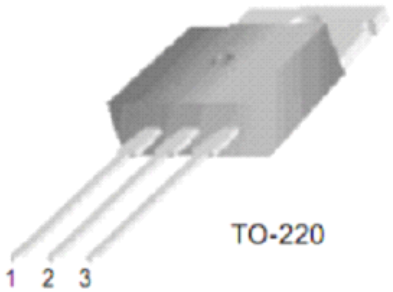
Ultra low on-resistance 超低導通電阻
Low gate charge 低栅電荷密度
Fast switching 快速開關能力
High operating temperature 高工作温度范围

■Applications 应用

Switch mode power supplies 開關電源
DC-DC converters and UPS 直流直流变换和不间断電源
PWM motor controls 脉宽调制電机控制
General switching applications 普通開關应用

■Internal Schematic Diagram 内部结构





■Absolute Maximum Ratings 最大额定值

Characteristic 特性參數	Symbol 符號	Max 最大值	Unit 單位
Drain-Source Voltage 漏極-源極電壓	BV_{DSS}	60	V
Gate- Source Voltage 栅極-源極電壓	V_{GS}	±20	V
Drain Current (continuous)漏極電流-連續	I_D（at TC = 25°C at TC = 100°C）	60 39	A
Drain Current (pulsed)漏極電流-脉冲	I_{DM}	120	A
Total Device Dissipation 總耗散功率	P_{TOT}(at TC = 25°C)	120	W
Thermal Resistance Junction-Case 熱阻	$R_{\Theta JC}$	1.25	℃/W
Thermal Resistance Junction-Ambient 熱阻	$R_{\Theta JA}$	62.5	℃/W
Junction/Storage Temperature 結溫/儲存溫度	T_J,T_{stg}	-55~150	℃

■Electerical Characteristics 電特性

(T_A=25℃ unless otherwise noted 如無特殊說明，溫度爲 25℃)

Characteristic 特性參數	Symbol 符號	Min 最小值	Typ 典型值	Max 最大值	Unit 單位
Drain-Source Breakdown Voltage 漏極-源極擊穿電壓(I_D =250uA,V_{GS}=0V)	BV_{DSS}	60	—	—	V
Gate Threshold Voltage 柵極開启電壓(I_D =250uA,V_{GS}= V_{DS})	$V_{GS(th)}$	2	3	4	V
Zero Gate Voltage Drain Current 零柵壓漏極電流(V_{GS}=0V, V_{DS}= 60V)	I_{DSS}	—	—	1	uA
Gate Body Leakage 柵極漏電流(V_{GS}=±20V, V_{DS}=0V)	I_{GSS}	—	—	±100	nA
Static Drain-Source On-State Resistance 静态漏源導通電阻(I_D=30A,V_{GS}=10V)	$R_{DS(ON)}$	—	16	18	mΩ
Source Drain Current 源極-漏極電流	I_{SD}	—	—	60	A
Source Drain Current (pulsed) 源極-漏極電流(脉冲)	I_{SDM}	—	—	120	A
Diode Forward Voltage Drop 内附二極管正向壓降(I_{SD}=60A,V_{GS}=0V)	V_{SD}	—	—	1.5	V
Input Capacitance 輸入電容 (V_{GS}=0V, V_{DS}=25V,f=1MHz)	C_{ISS}	—	—	2000	pF
Common Source Output Capacitance 共源輸出電容(V_{GS}=0V, V_{DS}=25V,f=1MHz)	C_{OSS}	—	—	400	pF
Gate Source Charge 柵源電荷密度 (V_{DS}=30V, I_D=60A, V_{GS}=10V)	Q_{gs}	—	12	—	nC
Gate Drain Charge 柵漏電荷密度 (V_{DS}=30V, I_D=60A, V_{GS}=10V)	Q_{gd}	—	10	—	nC
Turn-ON Time 開启時間 (V_{DS}=30V, I_D=60A, R_{GEN}=0.5Ω,V_{GS}=10V)	$t_{(on)}$	—	—	30	ns
Turn-OFF Time 關断時間 (V_{DS}=30V, I_D=60A, R_{GEN}=0.5Ω,V_{GS}=10V)	$t_{(off)}$	—	—	50	ns
Reverse Recovery Time 反向恢复時間 (I_{SD}=60A, V_{DD}=25V)	t_{rr}	—	132	—	ns