



N-channel 60V, 60A, TO-220 Power MOSFET 功率場效應管

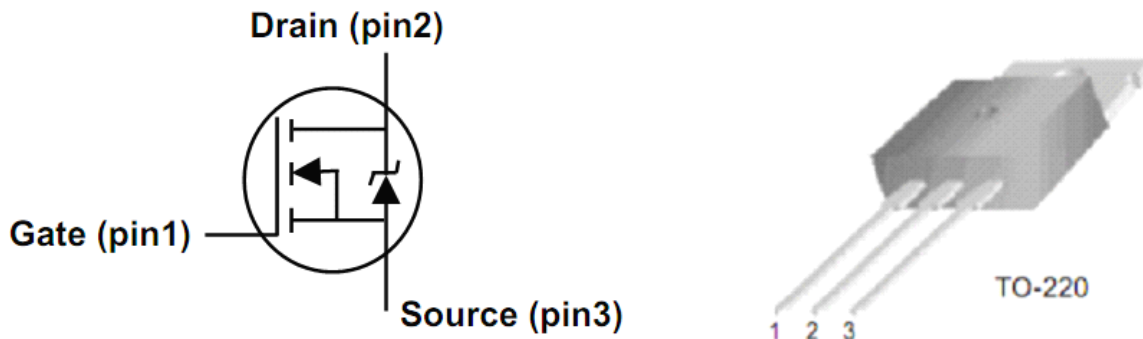
■ **Features 特點**

- Ultra low on-resistance 超低導通電阻
- Low gate charge 低柵電荷密度
- Fast switching 快速開關能力
- High operating temperature 高工作溫度範圍

■ **Applications 應用**

- Switch mode power supplies 開關電源
- DC-DC converters and UPS 直流直流變換和不間斷電源
- PWM motor controls 脈寬調製電機控制
- General switching applications 普通開關應用

■ **Internal Schematic Diagram 內部結構**



■ **Absolute Maximum Ratings 最大額定值**

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 柵極-源極電壓	V_{GS}	± 20	V
Drain Current (continuous) 漏極電流-連續	I_D (at $T_C = 25^\circ C$ at $T_C = 100^\circ C$)	60 39	A
Drain Current (pulsed) 漏極電流-脈沖	I_{DM}	120	A
Total Device Dissipation 總耗散功率	P_{TOT} (at $T_C = 25^\circ C$)	120	W
Thermal Resistance Junction-Case 熱阻	$R_{\theta JC}$	1.25	$^\circ C/W$
Thermal Resistance Junction-Ambient 熱阻	$R_{\theta JA}$	62.5	$^\circ C/W$
Junction/Storage Temperature 結溫/儲存溫度	T_J, T_{stg}	-55~150	$^\circ C$



■ **Electrical Characteristics** 電特性

($T_A=25^{\circ}\text{C}$ unless otherwise noted 如無特殊說明，溫度為 25°C)

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($I_D=250\mu\text{A}, V_{GS}=0\text{V}$)	BV_{DSS}	60	—	—	V
Gate Threshold Voltage 柵極開啓電壓($I_D=250\mu\text{A}, V_{GS}=V_{DS}$)	$V_{GS(th)}$	2	3	4	V
Zero Gate Voltage Drain Current 零柵壓漏極電流($V_{GS}=0\text{V}, V_{DS}=60\text{V}$)	I_{DSS}	—	—	1	μA
Gate Body Leakage 柵極漏電流($V_{GS}=\pm 20\text{V}, V_{DS}=0\text{V}$)	I_{GSS}	—	—	± 100	nA
Static Drain-Source On-State Resistance 靜態漏源導通電阻($I_D=30\text{A}, V_{GS}=10\text{V}$)	$R_{DS(ON)}$	—	16	18	$\text{m}\Omega$
Source Drain Current 源極-漏極電流	I_{SD}	—	—	60	A
Source Drain Current (pulsed) 源極-漏極電流(脈沖)	I_{SDM}	—	—	120	A
Diode Forward Voltage Drop 內附二極管正向壓降($I_{SD}=60\text{A}, V_{GS}=0\text{V}$)	V_{SD}	—	—	1.5	V
Input Capacitance 輸入電容 ($V_{GS}=0\text{V}, V_{DS}=25\text{V}, f=1\text{MHz}$)	C_{ISS}	—	—	2000	pF
Common Source Output Capacitance 共源輸出電容($V_{GS}=0\text{V}, V_{DS}=25\text{V}, f=1\text{MHz}$)	C_{OSS}	—	—	400	pF
Gate Source Charge 柵源電荷密度 ($V_{DS}=30\text{V}, I_D=60\text{A}, V_{GS}=10\text{V}$)	Q_{gs}	—	12	—	nC
Gate Drain Charge 柵漏電荷密度 ($V_{DS}=30\text{V}, I_D=60\text{A}, V_{GS}=10\text{V}$)	Q_{gd}	—	10	—	nC
Turn-ON Time 開啓時間 ($V_{DS}=30\text{V}, I_D=60\text{A}, R_{GEN}=0.5\Omega, V_{GS}=10\text{V}$)	$t_{(on)}$	—	—	30	ns
Turn-OFF Time 關斷時間 ($V_{DS}=30\text{V}, I_D=60\text{A}, R_{GEN}=0.5\Omega, V_{GS}=10\text{V}$)	$t_{(off)}$	—	—	50	ns
Reverse Recovery Time 反向恢復時間 ($I_{SD}=60\text{A}, V_{DD}=25\text{V}$)	t_{rr}	—	132	—	ns