



**N-channel 75V, 9mΩ, 80A, TO-220 Low Qg Power MOSFET 低柵電荷密度功率場效應管**

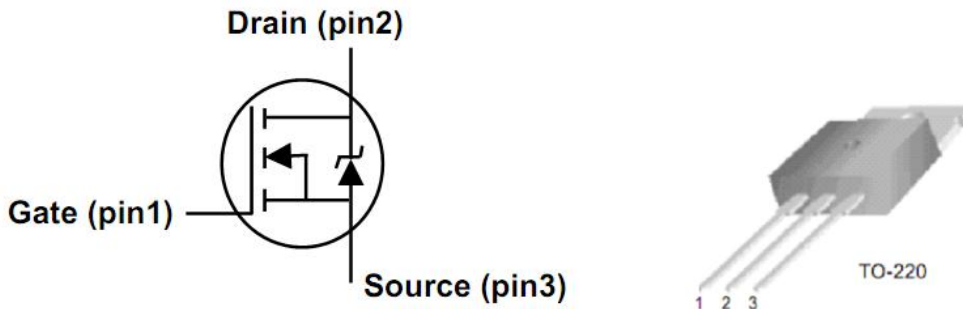
■ **Features 特點**

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

■ **Applications 應用**

- High Efficiency Synchronous Rectification 高效率同步整流
- 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

■ **Internal Schematic Diagram 內部結構**



■ **Absolute Maximum Ratings 最大額定值**

Characteristic 特性參數	Symbol 符號	Rat 額定值	Unit 單位
Drain-Source Voltage 漏極-源極電壓	$BV_{DSS}$	75	V
Gate- Source Voltage 柵極-源極電壓	$V_{GS}$	$\pm 25$	V
Drain Current (continuous)漏極電流-連續	$I_D$ (at $T_C = 25^\circ C$ at $T_C = 100^\circ C$ )	80 56	A
Drain Current (pulsed)漏極電流-脈沖	$I_{DM}$	310	A
Total Device Dissipation 總耗散功率	$P_{TOT}$ (at $T_C = 25^\circ C$ )	140	W
Single Pulse Avalanche Energy 雪崩能量	$E_{AS}$	120	mJ
Thermal Resistance Junction-Case 熱阻	$R_{\theta JC}$	1	$^\circ C/W$
Junction/Storage Temperature 結溫/儲存溫度	$T_J, T_{stg}$	-55~175	$^\circ C$



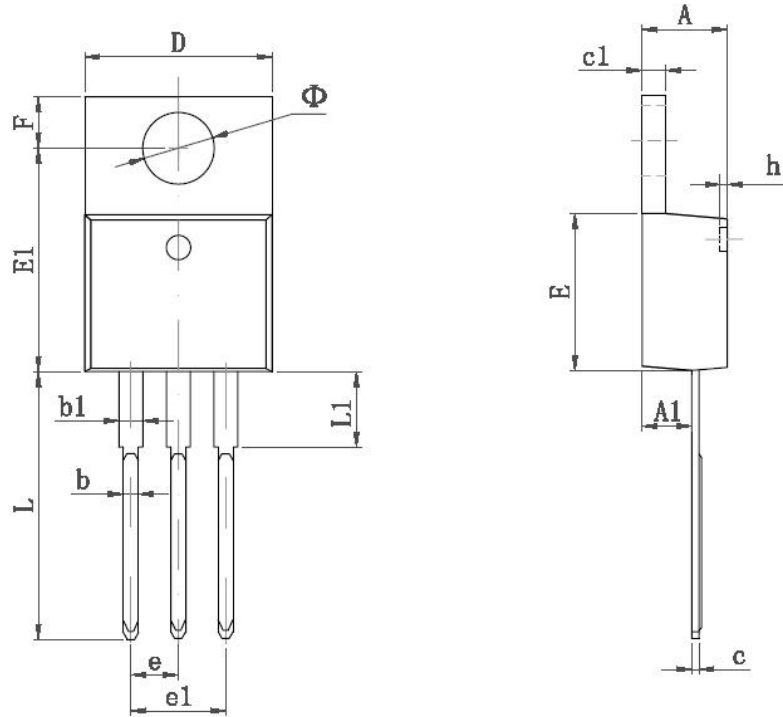
■ Electrical Characteristics 電特性

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

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( $I_D=250\mu\text{A}, V_{GS}=0\text{V}$ )	$BV_{DSS}$	75	—	—	V
Gate Threshold Voltage 柵極開啓電壓( $I_D=250\mu\text{A}, V_{GS}=V_{DS}$ )	$V_{GS(th)}$	2	2.7	4	V
Zero Gate Voltage Drain Current 零柵壓漏極電流( $V_{GS}=0\text{V}, V_{DS}=64\text{V}$ )	$I_{DSS}$	—	—	1	$\mu\text{A}$
Gate Body Leakage 柵極漏電流( $V_{GS}=\pm 25\text{V}, V_{DS}=0\text{V}$ )	$I_{GSS}$	—	—	$\pm 100$	nA
Static Drain-Source On-State Resistance 靜態漏源導通電阻( $I_D=40\text{A}, V_{GS}=10\text{V}$ )	$R_{DS(ON)}$	—	7.5	9	$\text{m}\Omega$
Forward Trans-conductance 正向傳輸導納( $I_D=40\text{A}, V_{DS}=10\text{V}$ )	$g_{FS}$	20	—	—	S
Source Drain Current 源極-漏極電流	$I_{SD}$	—	—	75	A
Diode Forward Voltage Drop 內附二極管正向壓降( $I_{SD}=30\text{A}, V_{GS}=0\text{V}$ )	$V_{SD}$	—	—	1.3	V
Gate Resistance 柵極電阻 ( $V_{GS}=0\text{V}, V_{DS}=50\text{V}, f=1\text{MHz}$ )	$R_g$	—	1.5	—	$\Omega$
Input Capacitance 輸入電容 ( $V_{GS}=0\text{V}, V_{DS}=50\text{V}, f=1\text{MHz}$ )	$C_{ISS}$	—	2980	—	pF
Common Source Output Capacitance 共源輸出電容( $V_{GS}=0\text{V}, V_{DS}=50\text{V}, f=1\text{MHz}$ )	$C_{OSS}$	—	280	—	pF
Total Gate Charge 柵極電荷密度 ( $V_{DS}=38\text{V}, I_D=46\text{A}, V_{GS}=10\text{V}$ )	$Q_g$	—	56	—	nC
Gate Source Charge 柵源電荷密度 ( $V_{DS}=38\text{V}, I_D=46\text{A}, V_{GS}=10\text{V}$ )	$Q_{gs}$	—	13	—	nC
Gate Drain Charge 柵漏電荷密度 ( $V_{DS}=38\text{V}, I_D=46\text{A}, V_{GS}=10\text{V}$ )	$Q_{gd}$	—	16	—	nC
Turn-ON Delay Time 開啓延遲時間 ( $V_{DS}=49\text{V}, I_D=46\text{A}, R_{GEN}=6.8\Omega, V_{GS}=10\text{V}$ )	$t_{d(on)}$	—	16	—	ns
Turn-OFF Delay Time 關斷延遲時間 ( $V_{DS}=49\text{V}, I_D=46\text{A}, R_{GEN}=6.8\Omega, V_{GS}=10\text{V}$ )	$t_{d(off)}$	—	43	—	ns



■ Dimension 外形封裝尺寸



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	4.470	4.670	0.176	0.184
A1	2.520	2.820	0.099	0.111
b	0.710	0.910	0.028	0.036
b1	1.170	1.370	0.046	0.054
c	0.310	0.530	0.012	0.021
c1	1.170	1.370	0.046	0.054
D	10.010	10.310	0.394	0.406
E	8.500	8.900	0.335	0.350
E1	12.060	12.460	0.475	0.491
e	2.540TYPE		0.100TYPE	
e1	4.980	5.180	0.196	0.204
F	2.590	2.890	0.102	0.114
h	0.000	0.300	0.000	0.012
L	13.400	13.800	0.528	0.543
L1	3.560	3.960	0.140	0.156
Φ	3.735	3.935	0.147	0.155