



N-channel 100V, TO-220 MOSFET N-溝道場效應管

■ Features 特點

Low on-resistance and maximum DC current capability 低導通電阻和最大直流電流能力

Super high density cell design 超高元胞密度設計

$R_{DS(ON)}=10m\Omega(TYP)@V_{GS}=10V$

$R_{DS(ON)}=13m\Omega(TYP)@V_{GS}=4.5V$

■ Applications 應用

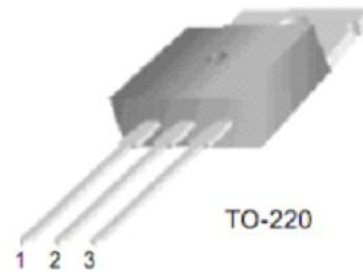
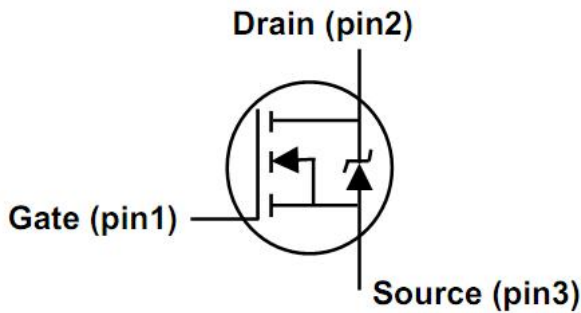
Industrial and Motor Drive applications 工業及马达驱动應用

AC/DC、DC/DC Converter 交流/直流、直流/直流变换

UPS (Uninterruptible Power Supplies)不間斷電源應用

Fast Switching 高速開關應用

■ Internal Schematic Diagram 內部結構



■ Absolute Maximum Ratings 最大額定值

Characteristic 特性參數	Symbol 符號	Rat 額定值	Unit 單位
Drain-Source Voltage 漏極-源極電壓	BV_{DSS}	100	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 $T_C = 25^\circ C$)	100	A
Drain Current (pulsed)漏極電流-脉冲	I_{DM}	380*	A
Total Device Dissipation 總耗散功率	$P_{TOT}(at\ T_C = 25^\circ C)$	192	W
Single Pulse Avalanche Energy 雪崩能量	E_{AS}	575**	mJ
Thermal Resistance Junction-Case 熱阻	$R_{\theta JC}$	0.78	$^\circ C/W$
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	$^\circ C$

* Surface mounted on FR-4 board

** E_{AS} condition: $L=0.5mH$, $R_g=25\Omega$, $V_D=80V$, $V_{GS}=10V$, I_D rating 36A



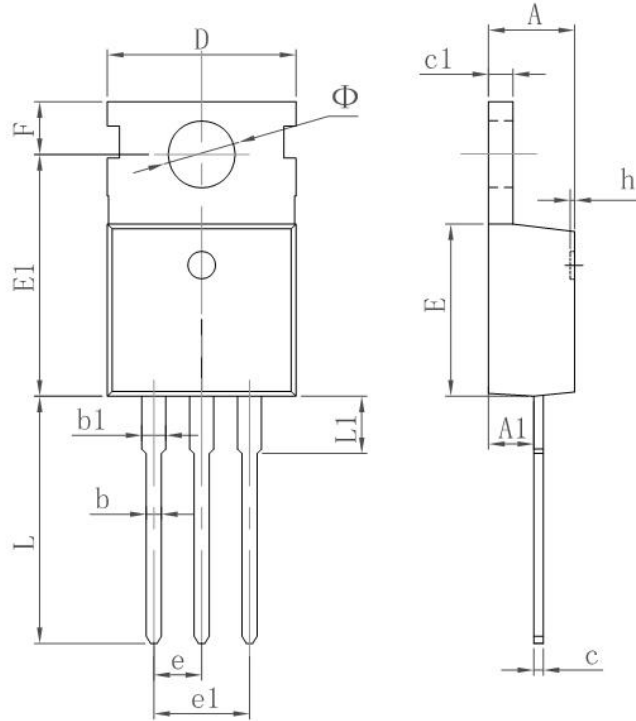
■ Electrical Characteristics 電特性

($T_A=25^{\circ}\text{C}$ 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}	107	—	—	V
Gate Threshold Voltage 柵極開啓電壓($I_D=250\mu\text{A}, V_{GS}=V_{DS}$)	$V_{GS(th)}$	1.4	1.8	2.2	V
Zero Gate Voltage Drain Current 零柵壓漏極電流($V_{GS}=0\text{V}, V_{DS}=100\text{V}$)	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($I_D=50\text{A}, V_{GS}=10\text{V}$) ($I_D=40\text{A}, V_{GS}=4.5\text{V}$)	$R_{DS(ON)}$	—	10 13	12 16	$\text{m}\Omega$
Diode Forward Voltage Drop 內附二極管正向壓降($I_{SD}=1\text{A}, V_{GS}=0\text{V}$)	V_{SD}	—	—	1	V
Input Capacitance 輸入電容 ($V_{GS}=0\text{V}, V_{DS}=25\text{V}, f=1\text{MHz}$)	C_{ISS}	—	3000	—	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}	—	800	—	pF
Reverse Transfer Capacitance 反向傳輸電容 ($V_{GS}=0\text{V}, V_{DS}=25\text{V}, f=1\text{MHz}$)	C_{RSS}	—	250	—	pF
Total Gate Charge 總柵極電荷密度 ($V_{DS}=80\text{V}, I_D=50\text{A}, V_{GS}=10\text{V}$)	Q_g	—	75	—	nC
Gate Source Charge 柵源電荷密度 ($V_{DS}=80\text{V}, I_D=50\text{A}, V_{GS}=10\text{V}$)	Q_{gs}	—	12	—	nC
Gate Drain Charge 柵漏電荷密度 ($V_{DS}=80\text{V}, I_D=50\text{A}, V_{GS}=10\text{V}$)	Q_{gd}	—	25	—	nC
Turn-On Delay Time 開啓延遲時間 ($V_{DS}=50\text{V}, I_D=50\text{A}, R_{GEN}=6\Omega, V_{GS}=10\text{V}$)	$t_{d(on)}$	—	20	—	ns
Turn-On Rise Time 開啓上升時間 ($V_{DS}=50\text{V}, I_D=50\text{A}, R_{GEN}=6\Omega, V_{GS}=10\text{V}$)	t_r	—	50	—	ns
Turn-Off Delay Time 關斷延遲時間 ($V_{DS}=50\text{V}, I_D=50\text{A}, R_{GEN}=6\Omega, V_{GS}=10\text{V}$)	$t_{d(off)}$	—	60	—	ns
Turn-On Fall Time 開啓下降時間 ($V_{DS}=50\text{V}, I_D=50\text{A}, R_{GEN}=6\Omega, V_{GS}=10\text{V}$)	t_f	—	68	—	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