



P-channel -60V, -25A, TO-220F Power MOSFET 功率场效应管

■ Features 特點

Ultra low on-resistance 超低導通電阻

Fast switching 快速開關能力

■ Applications 应用

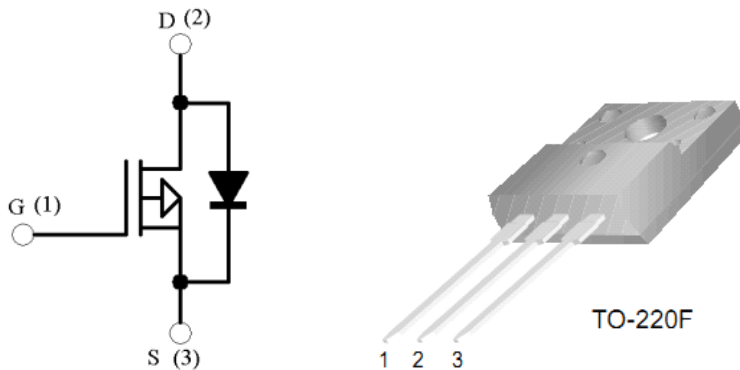
Switch mode power supplies 開關電源

DC-DC converters and UPS 直流直流变换和不间断電源

PWM motor controls 脉宽调制电机控制

General switching applications 普通開關应用

■ Internal Schematic Diagram 内部结构



■ 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 $T_C = 25^\circ C$)	-25	A
Drain Current (pulsed)漏極電流-脉冲	I_{DM}	-100	A
Total Device Dissipation 總耗散功率	P_{TOT} (at $T_C = 25^\circ C$)	40	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($I_D=-1\text{mA}, V_{GS}=0\text{V}$)	BV_{DSS}	-60	—	—	V
Gate Threshold Voltage 柵極開啓電壓($I_D=-1\text{mA}, V_{GS}=V_{DS}$)	$V_{GS(th)}$	-1	-1.6	-2.5	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}	—	—	-500	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($I_D=-12.5\text{A}, V_{GS}=-10\text{V}$) ($I_D=-12.5\text{A}, V_{GS}=-4\text{V}$)	$R_{DS(ON)}$	—	45 80	60 110	$\text{m}\Omega$
Source Drain Current 源極-漏極電流	I_{SD}	—	—	-25	A
Diode Forward Voltage Drop 內附二極管正向壓降($I_{SD}=-25\text{A}, V_{GS}=0\text{V}$)	V_{SD}	—	—	-3	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}	—	700	—	pF
Gate Charge 柵極電荷密度 ($V_{DS}=-15\text{V}, I_D=-1\text{A}, V_{GS}=-10\text{V}$)	Q_g	—	7	—	nC
Turn-On Delay Time 開啓延遲時間 ($V_{DS}=-30\text{V}, I_D=-25\text{A}, R_{GEN}=10\Omega, V_{GS}=-10\text{V}$)	$t_{d(on)}$	—	15	—	ns
Turn-On Rise Time 開啓上升時間 ($V_{DS}=-30\text{V}, I_D=-25\text{A}, R_{GEN}=10\Omega, V_{GS}=-10\text{V}$)	t_r	—	80	—	ns
Turn-Off Delay Time 關斷延遲時間 ($V_{DS}=-30\text{V}, I_D=-25\text{A}, R_{GEN}=10\Omega, V_{GS}=-10\text{V}$)	$t_{d(off)}$	—	190	—	ns
Turn-On Fall Time 開啓下降時間 ($V_{DS}=-30\text{V}, I_D=-25\text{A}, R_{GEN}=10\Omega, V_{GS}=-10\text{V}$)	t_f	—	90	—	ns



■ TYPICAL CHARACTERISTIC CURVE 典型特性曲线

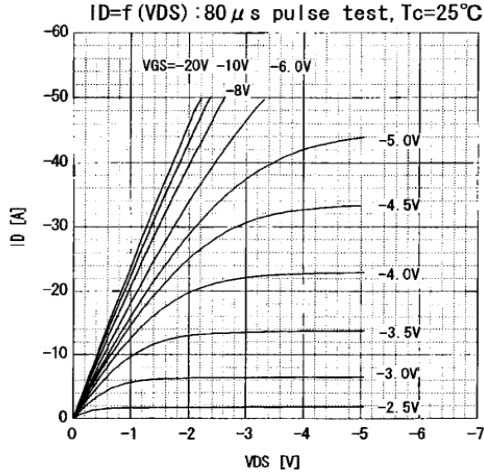


Figure 1. Output Characteristics
VGS (th) = f (Tch) : ID=-1mA, VDS=VGS

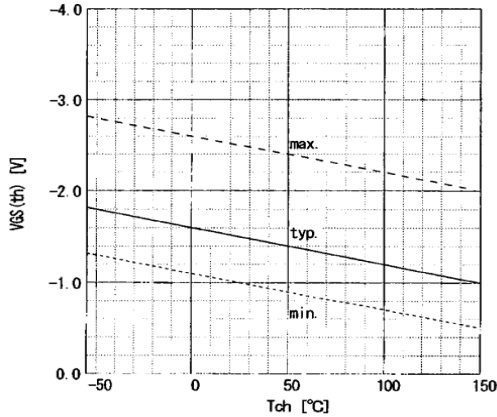


Figure 3. Gate Threshold Variation with Temperatures

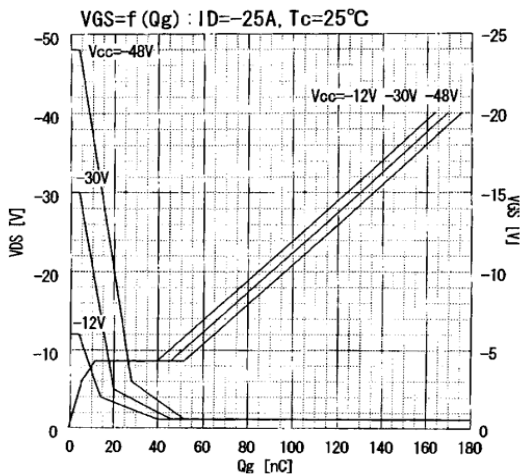


Figure 5. Gate charge Characteristics

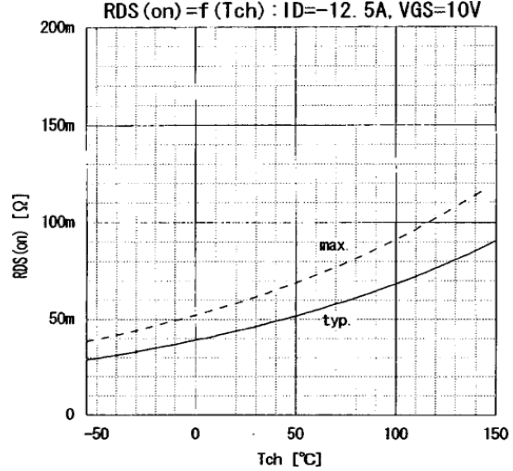


Figure 2. On-Resistance Variation with Temperature

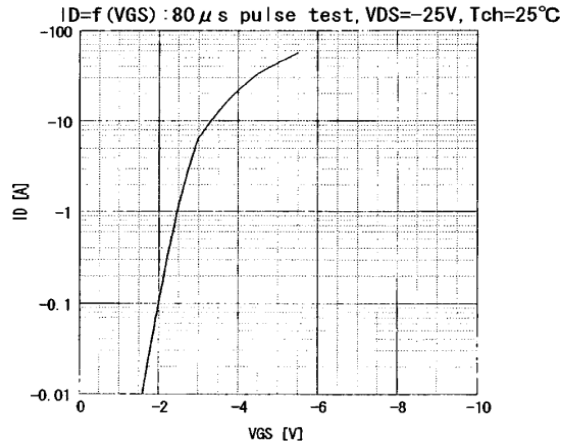


Figure 4. Transfer Characteristics

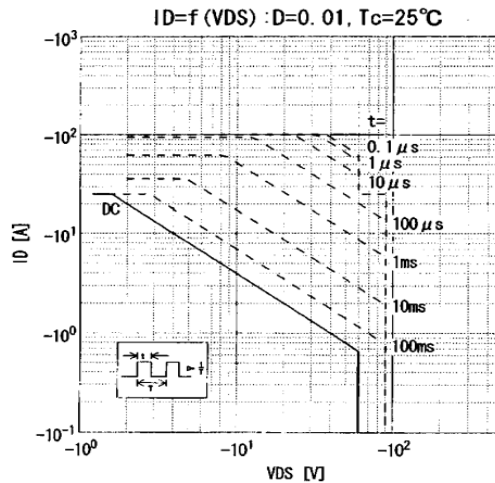


Figure 6. Maximum Safe Operating Area



■TO-220F 外形封装尺寸(DIMENSION)

单位(UNIT): mm

