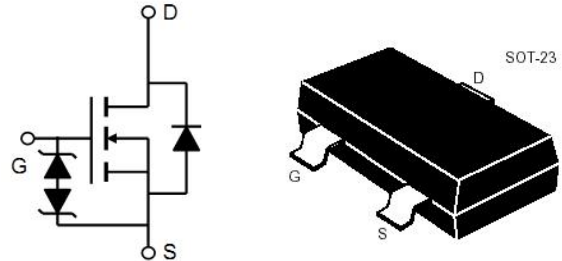




GM2020E

SOT-23 場效應晶體管(SOT-23 Field Effect Transistors)



N-Channel Enhancement-Mode MOS FET With ESD

N 溝道增強型帶靜電保護 MOS 場效應管

■ **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}	20	V
Gate- Source Voltage 柵極-源極電壓	V_{GS}	± 6	V
Drain Current (continuous) 漏極電流-連續	I_D	0.9	A
Drain Current (pulsed) 漏極電流-脈沖	I_{DM}	1.4	A
Total Device Dissipation 總耗散功率 $T_A=25^\circ\text{C}$ 環境溫度為 25°C	P_D	370	mW
Junction 結溫	T_J	150	$^\circ\text{C}$
Storage Temperature 儲存溫度	T_{stg}	-55to+150	$^\circ\text{C}$

■ **DEVICE MARKING 打標**

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■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}	20	—	—	V
Gate Threshold Voltage 柵極開啓電壓($I_D = 250\mu\text{A}, V_{GS} = V_{DS}$)	$V_{GS(th)}$	0.45	—	0.85	V
Diode Forward Voltage Drop 內附二極管正向壓降($I_S=0.35\text{A}, V_{GS}=0\text{V}$)	V_{SD}	—	—	1.1	V
Zero Gate Voltage Drain Current 零柵壓漏極電流($V_{GS}=0\text{V}, V_{DS}= 16\text{V}$)	I_{DSS}	—	—	100	nA
Gate Body Leakage 柵極漏電流($V_{GS}=\pm 5\text{V}, V_{DS}=0\text{V}$)	I_{GSS}	—	—	± 5	μA
Static Drain-Source On-State Resistance 靜態漏源導通電阻($I_D=0.55\text{A}, V_{GS}= 4.5\text{V}$)	$R_{DS(ON)}$	—	220	310	$\text{m}\Omega$
Static Drain-Source On-State Resistance 靜態漏源導通電阻($I_D= 0.45\text{A}, V_{GS}= 2.5\text{V}$)	$R_{DS(ON)}$	—	260	360	$\text{m}\Omega$
Static Drain-Source On-State Resistance 靜態漏源導通電阻($I_D= 0.35\text{A}, V_{GS}= 1.8\text{V}$)	$R_{DS(ON)}$	—	320	460	$\text{m}\Omega$
Input Capacitance 輸入電容 ($V_{GS}=0\text{V}, V_{DS}= 10\text{V}, f=1\text{MHz}$)	C_{ISS}	—	21	—	pF
Output Capacitance 輸出電容 ($V_{GS}=0\text{V}, V_{DS}= 10\text{V}, f=1\text{MHz}$)	C_{OSS}	—	15	—	pF
Reverse Transfer Capacitance 回饋電容($V_{GS}=0\text{V}, V_{DS}=10\text{V}, f=1\text{MHz}$)	C_{RSS}	—	9	—	pF
Gate Charge 柵極電荷密度 ($V_{DS}=25\text{V}, V_{GS}=10\text{V}, I_D=0.22\text{A}$)	Q_g	—	1.2	—	nC
Turn-ON Time 開啓時間 ($V_{DS}= 10\text{V}, V_{GS}= 4.5\text{V}, R_{GEN}=6\Omega$)	$t_{(on)}$	—	120	—	nS
Turn-OFF Time 關斷時間 ($V_{DS}= 10\text{V}, V_{GS}= 4.5\text{V}, R_{GEN}=6\Omega$)	$t_{(off)}$	—	700	—	nS

Pulse Width $\leq 300\mu\text{s}$; Duty Cycle $\leq 2.0\%$

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■ TYPICAL CHARACTERISTIC CURVE

典型特性曲线

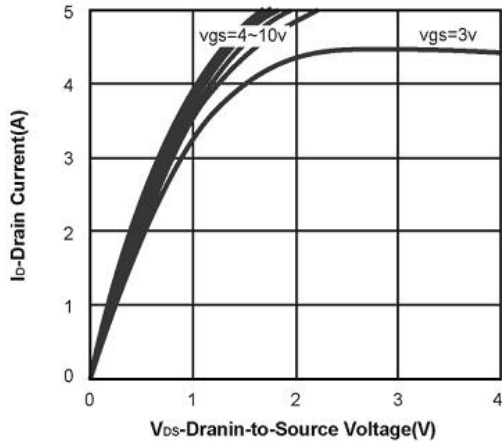


Figure 1: Output Characteristics

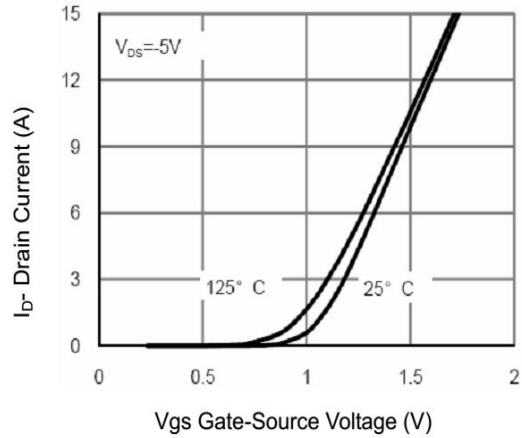


Figure 2: Transfer Characteristics

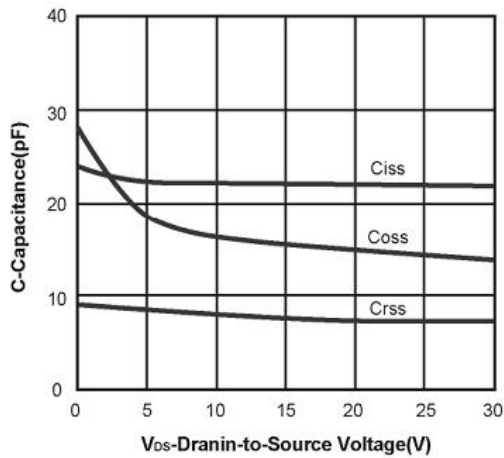


Figure 3: Capacitance Characteristics

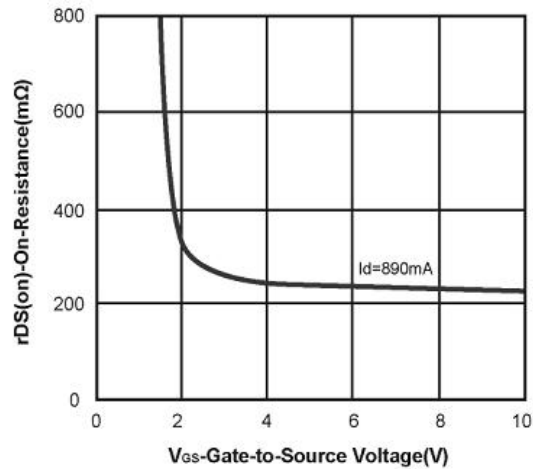


Figure 4: On-Resistance vs. Gate-Source Voltage

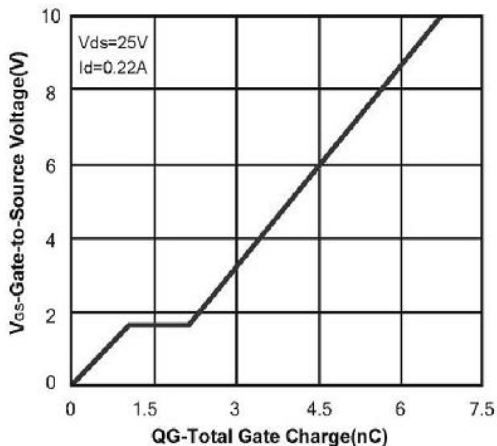


Figure 5: Gate-Charge Characteristics

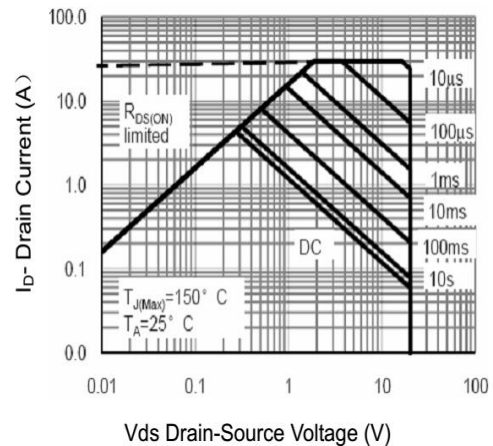


Figure 6: Safe Operating Area