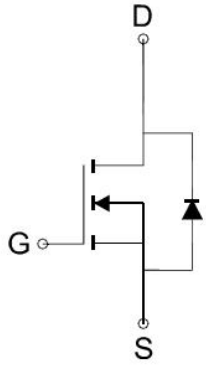
GMT4002

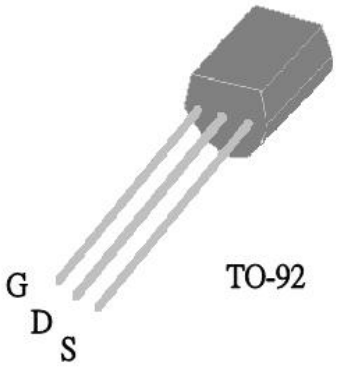
N-channel 600V, TO-92 MOSFET N-溝道場效應管

■Features 特點

Low on-resistance 低導通電阻
Super high density cell design 超高元胞密度設計
Fast Switching Characteristics 快速開關特性

■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}	600	V
Gate- Source Voltage 柵極-源極電壓	V_{GS}	±30	V
Drain Current (continuous)漏極電流-連續	I_D（at TC = 125°C）	400	mA
Drain Current (pulsed)漏極電流-脉冲	I_{DM}	3	A
Total Device Dissipation 總耗散功率	P_{TOT}(at TC = 25°C)	2	W
Thermal Resistance Junction-Ambient 熱阻	$R_{\Theta JA}$	150	℃/W
Junction/Storage Temperature 結溫/儲存溫度	T_J,T_{stg}	-55~150	℃

■Electrical Characteristics 電特性

(T_A=25℃ unless otherwise noted 如無特殊說明，溫度爲 25℃)

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 =1mA,V_{GS}=0V)	BV_{DSS}	600	—	—	V
Gate Threshold Voltage 柵極開启電壓(I_D =250uA,V_{GS}= V_{DS})	$V_{GS(th)}$	2	—	4	V
Zero Gate Voltage Drain Current 零柵壓漏極電流(V_{GS}=0V, V_{DS}= 600V)	I_{DSS}	—	—	100	uA
Gate Body Leakage 柵極漏電流(V_{GS}=±30V, V_{DS}=0V)	I_{GSS}	—	—	±1	uA
Static Drain-Source On-State Resistance 静态漏源導通電阻(I_D=400mA,V_{GS}=10V)	$R_{DS(ON)}$	—	—	9	Ω
Input Capacitance 輸入電容 (V_{GS}=0V, V_{DS}=10V,f=1MHz)	C_{ISS}	—	375	—	pF
Common Source Output Capacitance 共源輸出電容(V_{GS}=0V, V_{DS}=10V,f=1MHz)	C_{OSS}	—	170	—	pF
Reverse Transfer Capacitance 反向传輸電容 (V_{GS}=0V, V_{DS}=10V,f=1MHz)	C_{RSS}	—	45	—	pF
Gate Source Charge 柵源電荷密度 (V_{DS}=480V, I_D=2A, V_{GS}=10V)	Q_{gs}	—	2	—	nC
Gate Drain Charge 柵漏電荷密度 (V_{DS}=480V, I_D=2A, V_{GS}=10V)	Q_{gd}	—	5.5	—	nC
Turn-On Delay Time 開启延迟時間 (V_{DS}=200V, I_D=1A, R_{GEN}=50Ω,V_{GS}=10V)	$t_{d(on)}$	—	10	—	ns
Turn-On Rise Time 開启上升時間 (V_{DS}=200V, I_D=1A, R_{GEN}=50Ω,V_{GS}=10V)	t_r	—	12	—	ns
Turn-Off Delay Time 關断延迟時間 (V_{DS}=200V, I_D=1A, R_{GEN}=50Ω,V_{GS}=10V)	$t_{d(off)}$	—	52	—	ns
Turn-On Fall Time 開启下降時間 (V_{DS}=200V, I_D=1A, R_{GEN}=50Ω,V_{GS}=10V)	t_f	—	19	—	ns

■TYPICAL CHARACTERISTIC CURVE 典型特性曲线

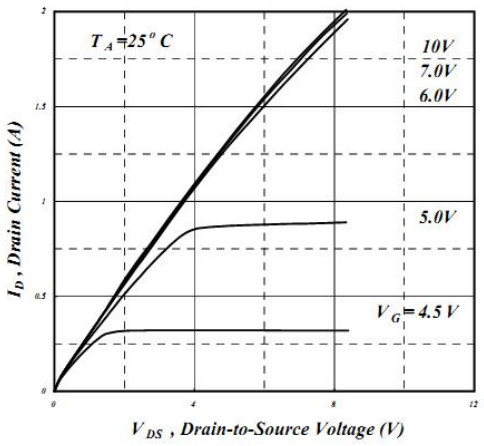


Figure 1.Output Characteristics

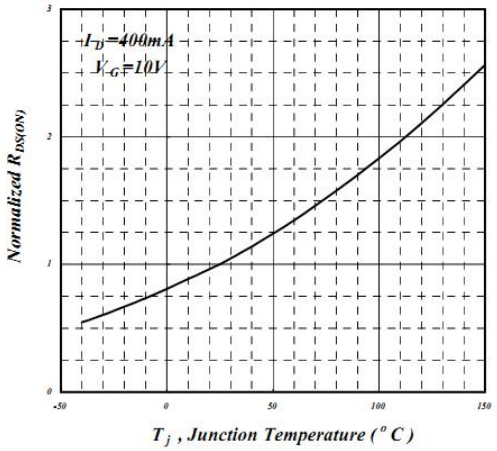


Figure2.On-Resistance Variation with Temperature

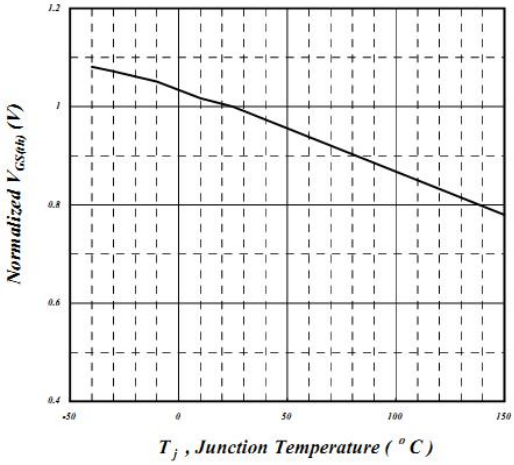


Figure3.Gate Threshold Variation with Temperatures

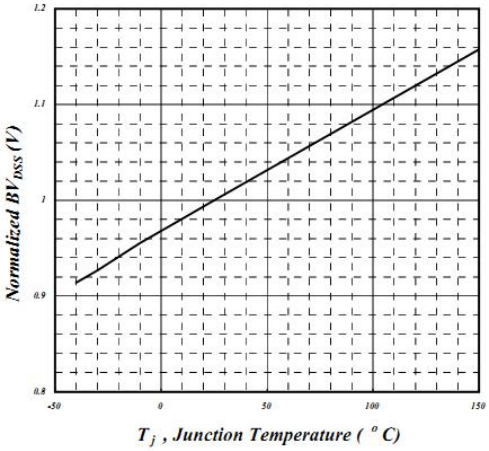


Figure4.Breakdown Voltage Variation with temperatures

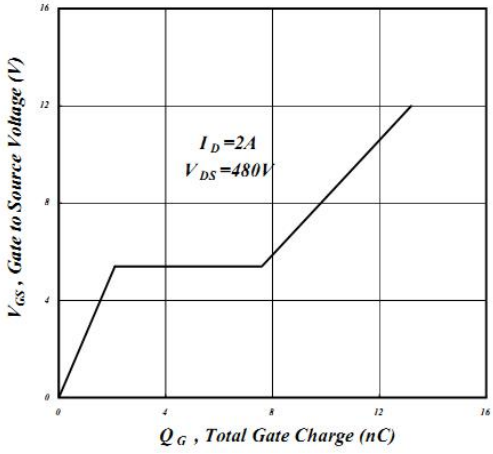


Figure5. Gate charge VS. Gate-source Voltage

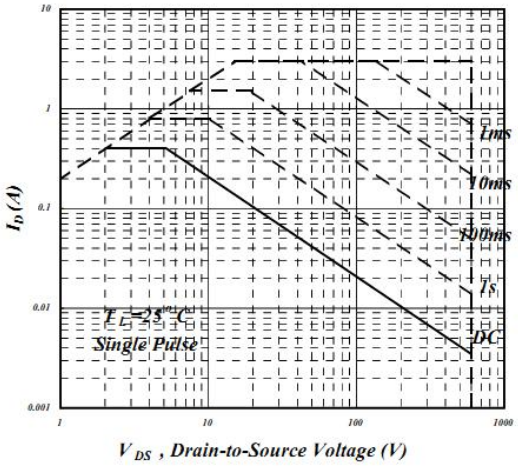
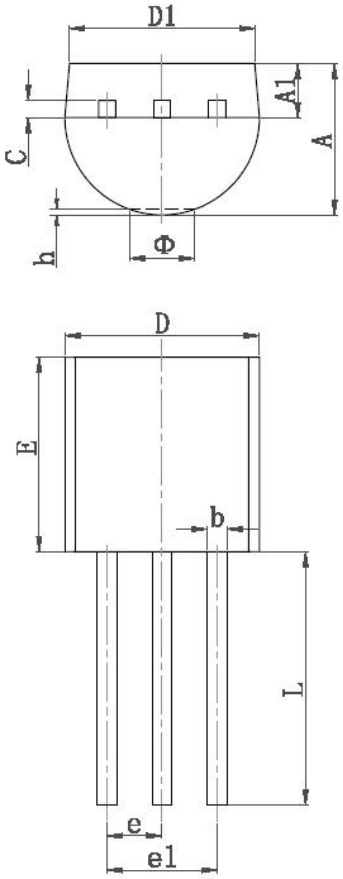


Figure6.Maximum Safe Operating Area

■TO-92 外形封裝尺寸(DIMENSION)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	3.300	3.700	0.130	0.146
A1	1.100	1.400	0.043	0.055
b	0.380	0.550	0.015	0.022
c	0.360	0.510	0.014	0.020
D	4.400	4.700	0.173	0.185
D1	3.430		0.135	
E	4.300	4.700	0.169	0.185
e	1.270TYPE		0.050TYPE	
e1	2.440	2.640	0.096	0.104
L	14.100	14.500	0.555	0.571
Φ		1.600		0.063
h	0.000	0.380	0.000	0.015