



**Dual N-channel 20V, TSSOP-8 MOSFET 双 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

$R_{DS(ON)} \leq 25m\Omega @ V_{GS}=4.5V$

$R_{DS(ON)} \leq 40m\Omega @ V_{GS}=2.5V$

**■ Applications 應用**

Power Management in Note book 筆記本電源管理

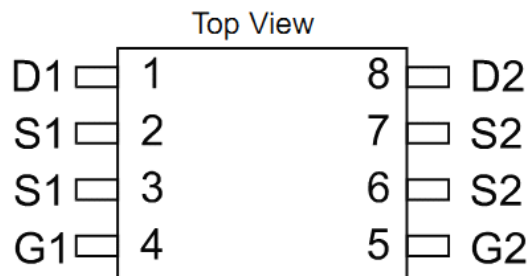
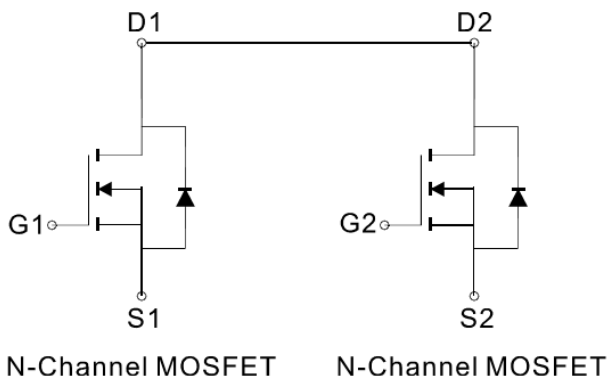
Portable Equipment 便攜式設備

Battery Powered System 電池電源系統

DC/DC Converter 直流/直流變換

Load Switch 負載開關應用

**■ Internal Schematic Diagram 內部結構**



**■ Absolute Maximum Ratings 最大額定值**

Characteristic 特性參數	Symbol 符號	Max 最大值	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	$V_{GS}$	$\pm 8$	V
Drain Current (continuous) 漏極電流-連續	$I_D$	5.0	A
Drain Current (pulsed) 漏極電流-脈沖	$I_{DM}$	20	A
Total Device Dissipation 總耗散功率	$P_{TOT}$ (at $T_C = 25^\circ C$ ) (at $T_C = 70^\circ C$ )	2 1.6	W
Thermal Resistance Junction-Ambient 熱阻	$R_{\theta JA}$	78	$^\circ C/W$
Thermal Resistance Junction-Case 熱阻	$R_{\theta JC}$	40	$^\circ C/W$
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  $25^{\circ}\text{C}$ )

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( $I_D=250\mu\text{A}, V_{GS}=0\text{V}$ )	$BV_{DSS}$	20	—	—	V
Gate Threshold Voltage 柵極開啓電壓( $I_D=250\mu\text{A}, V_{GS}=V_{DS}$ )	$V_{GS(th)}$	0.5	—	1.0	V
Zero Gate Voltage Drain Current 零柵壓漏極電流( $V_{GS}=0\text{V}, V_{DS}=20\text{V}$ )	$I_{DSS}$	—	—	1	$\mu\text{A}$
Gate Body Leakage 柵極漏電流( $V_{GS}=\pm 8\text{V}, V_{DS}=0\text{V}$ )	$I_{GSS}$	—	—	$\pm 100$	nA
Static Drain-Source On-State Resistance 靜態漏源導通電阻( $I_D=7\text{A}, V_{GS}=4.5\text{V}$ ) ( $I_D=6\text{A}, V_{GS}=2.5\text{V}$ )	$R_{DS(ON)}$	—	20 35	25 40	$\text{m}\Omega$
Diode Forward Voltage Drop 內附二極管正向壓降( $I_{SD}=1.7\text{A}, V_{GS}=0\text{V}$ )	$V_{SD}$	—	—	1.2	V
Input Capacitance 輸入電容 ( $V_{GS}=0\text{V}, V_{DS}=10\text{V}, f=1\text{MHz}$ )	$C_{ISS}$	—	700	—	pF
Common Source Output Capacitance 共源輸出電容( $V_{GS}=0\text{V}, V_{DS}=10\text{V}, f=1\text{MHz}$ )	$C_{OSS}$	—	175	—	pF
Reverse Transfer Capacitance 反向傳輸電容 ( $V_{GS}=0\text{V}, V_{DS}=10\text{V}, f=1\text{MHz}$ )	$C_{RSS}$	—	85	—	pF
Gate Source Charge 柵源電荷密度 ( $V_{DS}=10\text{V}, I_D=3\text{A}, V_{GS}=4.5\text{V}$ )	$Q_{gs}$	—	1.2	—	nC
Gate Drain Charge 柵漏電荷密度 ( $V_{DS}=10\text{V}, I_D=3\text{A}, V_{GS}=4.5\text{V}$ )	$Q_{gd}$	—	1.9	—	nC
Turn-On Delay Time 開啓延遲時間 ( $V_{DS}=10\text{V}, I_D=1\text{A}, R_{GEN}=6\Omega, V_{GS}=4.5\text{V}$ )	$t_{d(on)}$	—	8	—	ns
Turn-On Rise Time 開啓上升時間 ( $V_{DS}=10\text{V}, I_D=1\text{A}, R_{GEN}=6\Omega, V_{GS}=4.5\text{V}$ )	$t_r$	—	10	—	ns
Turn-Off Delay Time 關斷延遲時間 ( $V_{DS}=10\text{V}, I_D=1\text{A}, R_{GEN}=6\Omega, V_{GS}=4.5\text{V}$ )	$t_{d(off)}$	—	18	—	ns
Turn-On Fall Time 開啓下降時間 ( $V_{DS}=10\text{V}, I_D=1\text{A}, R_{GEN}=6\Omega, V_{GS}=4.5\text{V}$ )	$t_f$	—	5	—	ns



■ TYPICAL CHARACTERISTIC CURVE

典型特性曲线

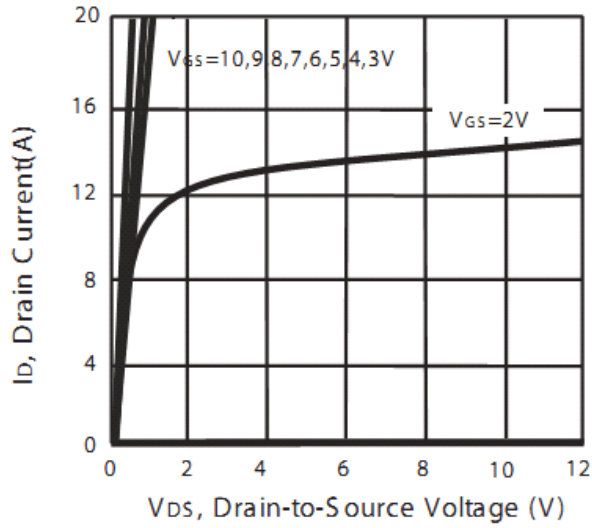


Figure 1. Output Characteristics

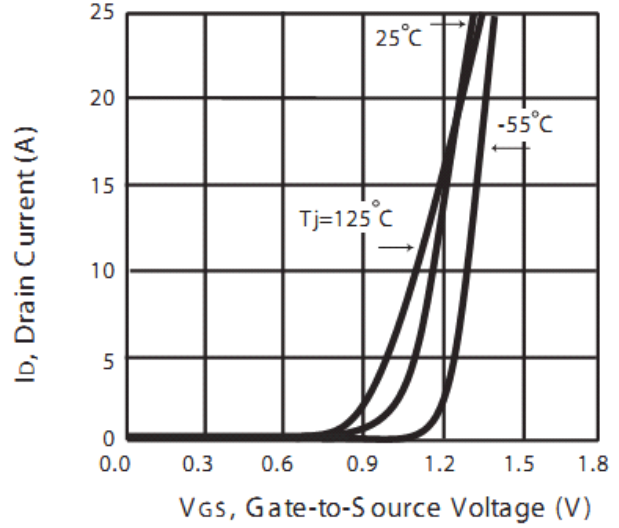


Figure 2. Transfer Characteristics

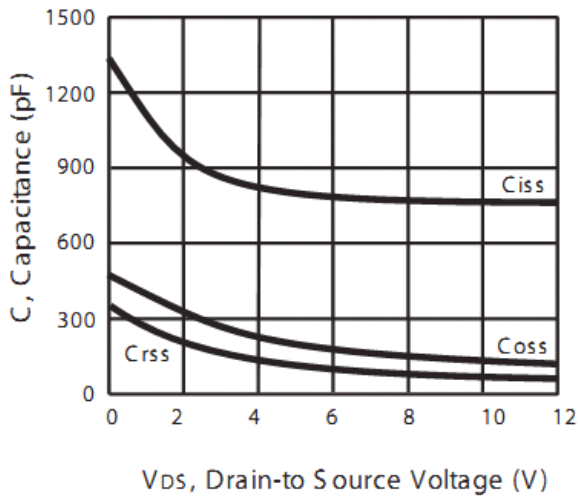


Figure 3. Capacitance

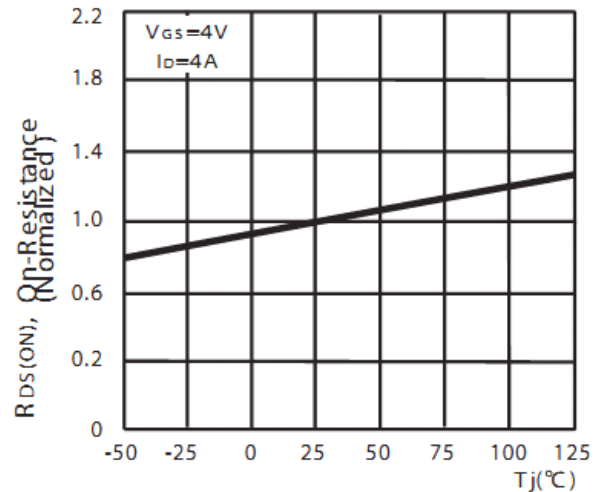
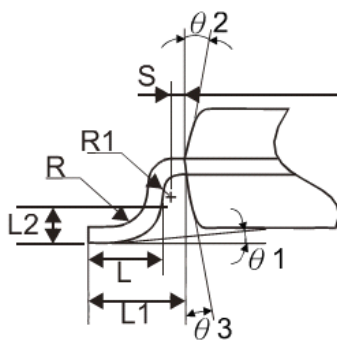
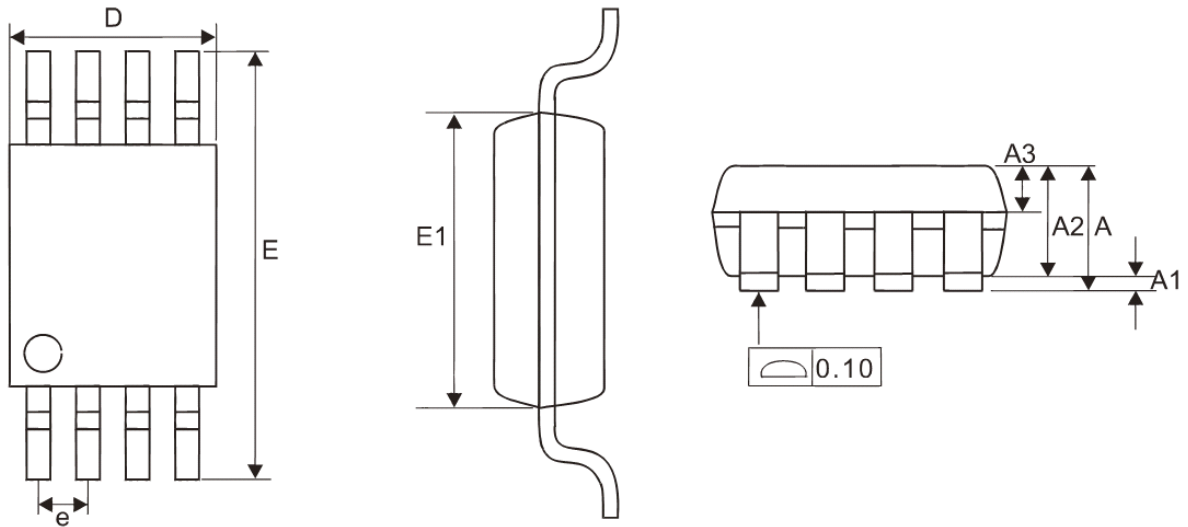


Figure 4. On-Resistance Variation with Temperature



■ DIMENSION 外形封裝尺寸



SYMBOL	MILLIMETERS	
	MIN	MAX
A	-	1.20
A1	0.05	0.15
A2	0.90	1.05
A3	0.34	0.54
D	2.90	3.10
E	6.20	6.60
E1	4.30	4.50
e	0.65BSC	
L	0.45	0.75
L1	1.00REF	
L2	0.25BSC	
R	0.09	-
R1	0.09	-
S	0.20	-
$\theta 1$	0°	8°
$\theta 2$	10°	14°
$\theta 3$	10°	14°

Note: 1. Refer to JEDEC MS-012AA.

2. Dimension "D" does not include mold flash, protrusions