UMW CEM9926A

Dual N-Channel Enhancement Mode Field Effect Transistor

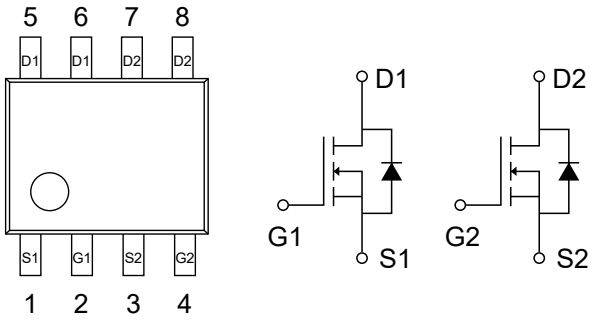
1.Features

- $V_{DS\ (V)}$=20V
- I_D=7A
- $R_{DS(ON)}$<26mΩ(V_{GS}=4.5V)
- $R_{DS(ON)}$<33mΩ(V_{GS}=2.5V)
- $R_{DS(ON)}$<42mΩ(V_{GS}=1.8V)

2.Pinning information

Pin	Symbol	Description
2,4	G1, G2	GATE
1,3	S1, S2	SOURCE
5,6,7,8	D1, D2	DRAIN

SOP-8



3.Absolute Maximum Ratings T_A=25°C unless otherwise noted

Parameter		Symbol	Maximum	Units
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Voltage		V_{GS}	±8	V
Continuous Drain Current [A]	T_A=25°C	I_D	7	A
	T_A=70°C		6	
Pulsed Drain Current [B]		I_{DM}	40	
Power Dissipation	T_A=25°C	P_D	2	W
	T_A=70°C		1.44	
Junction and Storage Temperature Range		T_J,T_{STG}	-55 to 150	°C

4.Thermal Characteristics

Parameter		Symbol	Typ	Max	Units
Maximum Junction-to-Ambient [A]	t ≤ 10s	$R_{\theta JA}$	48	62.5	°C/W
Maximum Junction-to-Ambient [A]	Steady-State		74	110	°C/W
Maximum Junction-to-Lead [C]	Steady-State	$R_{\theta JL}$	35	40	°C/W

5.Electrical Characteristics (T_J=25°C unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
STATIC PARAMETERS						
Drain-Source Breakdown Voltage	BV_{DSS}	I_D=250μA, V_{GS}=0V	20			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=16V, V_{GS}=0V			1	μA
		T_J=55°C			5	
Gate-Body leakage current	I_{GSS}	V_{DS}=0V, V_{GS}=±8V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	0.3	0.5	0.8	V
On state drain current	$I_{D(ON)}$	V_{GS}=4.5V, V_{DS}=5V	30			A
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=4.5V, I_D=7A		21.6	26	mΩ
		T_J=125°C		29.2	36	mΩ
		V_{GS}=2.5V, I_D=5A		26.4	33	mΩ
		V_{GS}=1.8V, I_D=4A		33.3	42	mΩ
Forward Transconductance	g_{FS}	V_{DS}=5V, I_D=5A		22		S
Diode Forward Voltage	V_{SD}	I_S=1A		0.76	1	V
Maximum Body-Diode Continuous Current	I_S				3	A
DYNAMIC PARAMETERS						
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=10V, f=1MHz		1050		pF
Output Capacitance	C_{oss}			163		pF
Reverse Transfer Capacitance	C_{rss}			129		pF
Gate resistance	R_g	V_{GS}=0V, V_{DS}=0V, f=1MHz		4		Ω

SWITCHING PARAMETERS						
Total Gate Charge	Q_g	V_{GS}=4.5V, V_{DS}=10V I_D=7A		15.2		nC
Gate Source Charge	Q_{gs}			1		nC
Gate Drain Charge	Q_{gd}			4		nC
Turn-On DelayTime	$t_{D(on)}$	V_{GS}=5V, V_{DS}=10V R_L=1.5Ω,R_{GEN}=3Ω		6.5		ns
Turn-On Rise Time	t_r			9		ns
Turn-Off DelayTime	$t_{D(off)}$			56.5		ns
Turn-Off Fall Time	t_f			13.2		ns
Body Diode Reverse Recovery Time	t_{rr}	I_F=5A, dI/dt=100A/μs		21		ns
Body Diode Reverse Recovery Charge	Q_{rr}	I_F=5A, dI/dt=100A/μs		7.1		nC

A: The value of $R_{\theta JA}$ is measured with the device mounted on 1in ^{2} FR-4 board with 2oz. Copper, in a still air environment with T_A=25°C. The value in any given application depends on the user's specific board design. The current rating is based on the t ≤ 10s thermal resistance rating.

B: Repetitive rating, pulse width limited by junction temperature.

C. The $R_{\theta JA}$ is the sum of the thermal impedence from junction to lead $R_{\theta JL}$ and lead to ambient.

D. The static characteristics in Figures 1 to 6 are obtained using 80 μs pulses, duty cycle 0.5% max.

E. These tests are performed with the device mounted on 1 in ^{2} FR-4 board with 2oz. Copper, in a still air environment with T_A=25°C. The SOA curve provides a single pulse rating.

6.1 Typical Characteristic

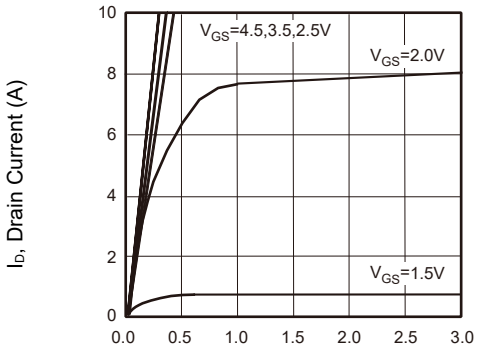


Fig 1: On-Region Characteristics

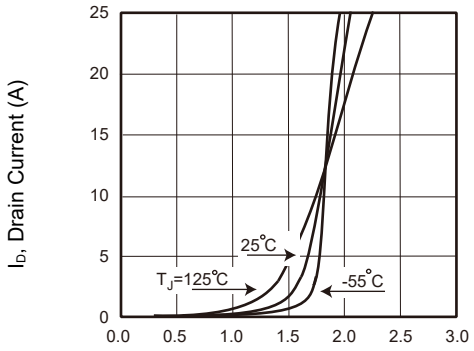


Figure 2: Transfer Characteristics

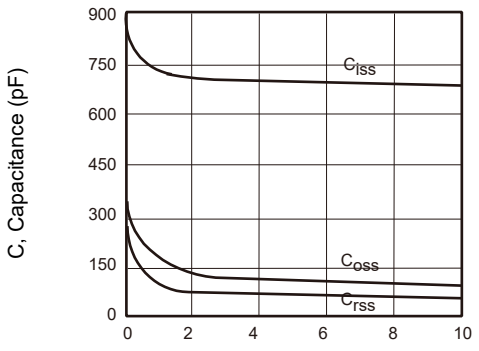


Figure 3: Capacitance

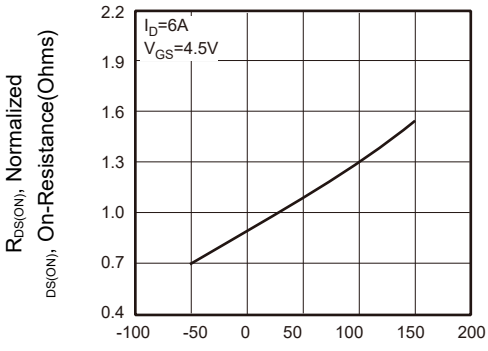


Figure 4: On-Resistance Variation with Temperature

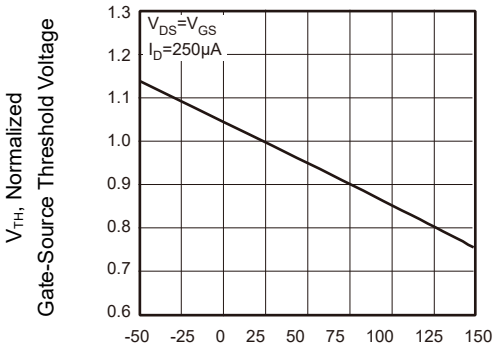


Figure 5: Gate Threshold Variation with Temperature

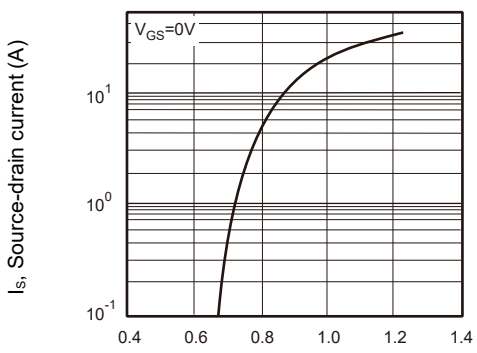


Figure 6: Body Diode Forward Voltage Variation with Source Current

6.2 Typical Characteristic

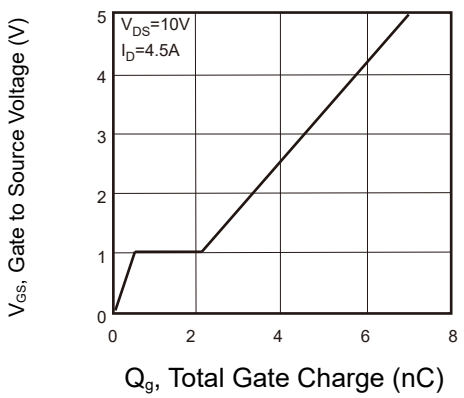


Figure 7: Gate Charge

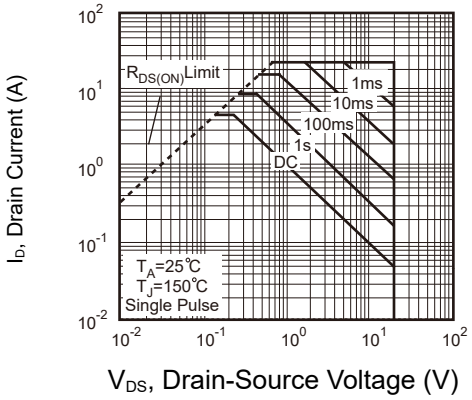


Figure 8: Maximum Safe Operating Area

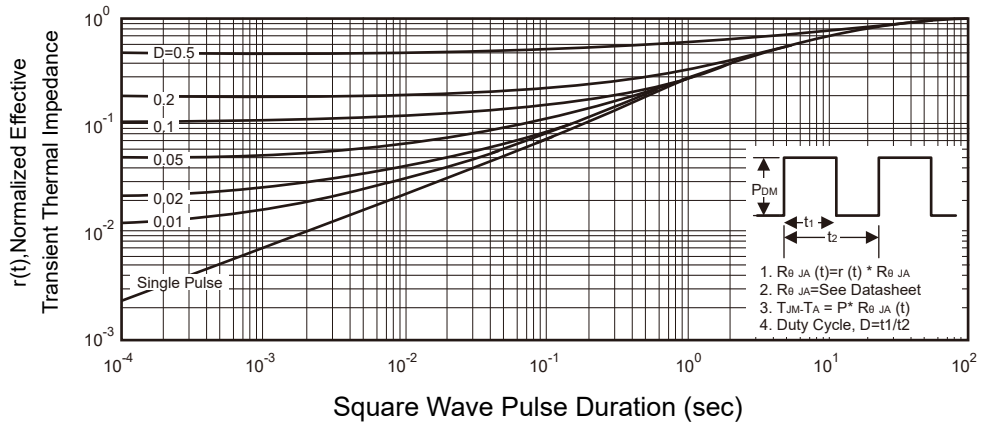
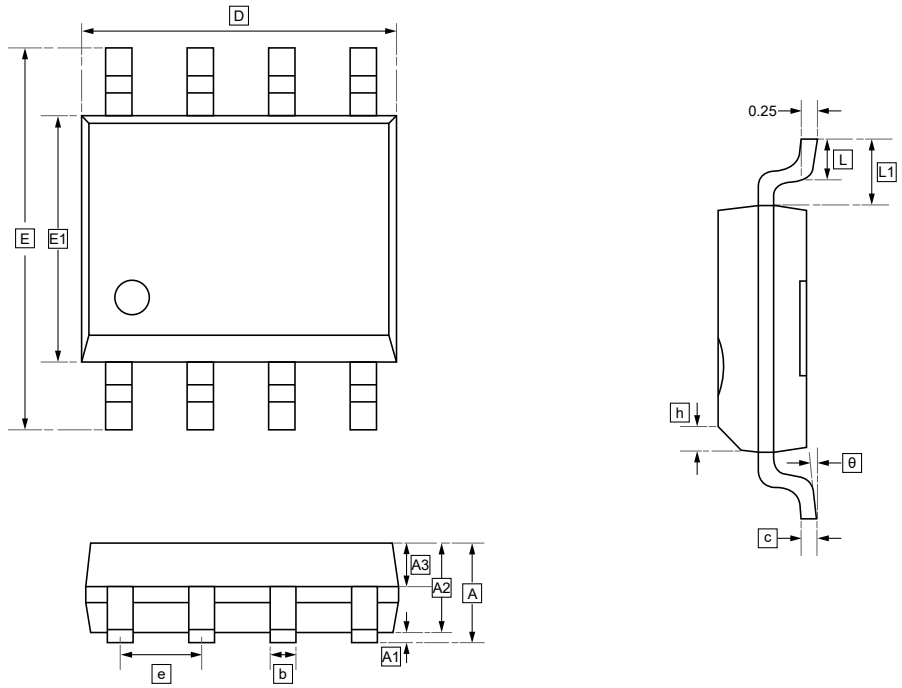


Figure 9: Normalized Thermal Transient Impedance Curve

7.SOP-8 Package Outline Dimensions

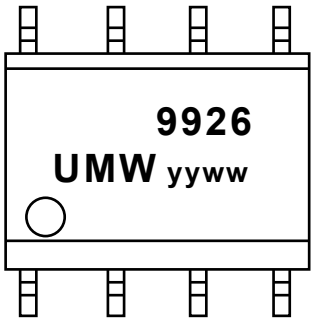


DIMENSIONS (mm are the original dimensions)

Symbol	A	A1	A2	A3	b	c	D	E	E1	e	h	L
Min	-	0.05	1.30	0.60	0.39	0.20	4.70	5.80	3.80	1.24	0.30	0.50
Max	1.75	0.20	1.50	0.70	0.47	0.24	5.10	6.20	4.00	1.30	0.50	0.80

Symbol	L1	θ
Min	1.00	0°
Max	1.10	8°

8.Ordering information



yy: Year Code
ww: Week Code

Order Code	Package	Base QTY	Delivery Mode
UMW CEM9926A	SOP-8	3000	Tape and reel

9.Disclaimer

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