



UML2502

Power MOSFET

N-CHANNEL POWER MOSFET

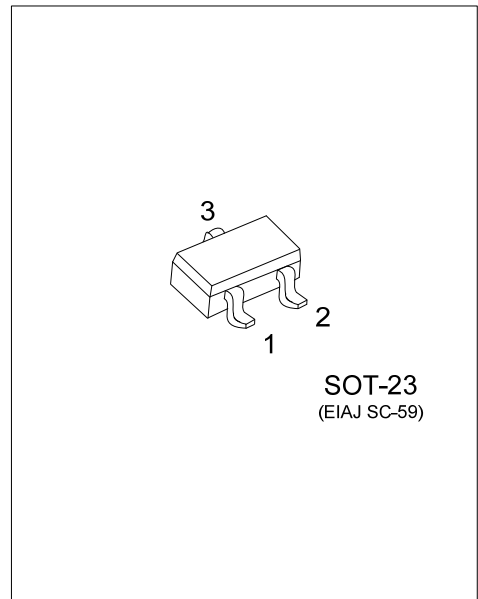
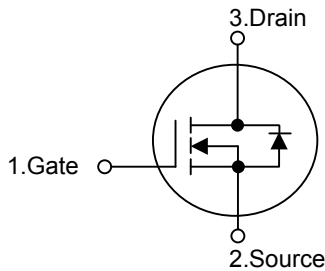
DESCRIPTION

The **UML2502** uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with low gate voltages. This device is suitable for use as a load switch or in PWM applications.

FEATURES

- * $R_{DS(ON)} \leq 45m\Omega$ @ $V_{GS}=4.5V, I_D=4.2A$
- * $R_{DS(ON)} \leq 80m\Omega$ @ $V_{GS}=2.5V, I_D=3.6A$
- * Ultra Low Gate Charge (Max. 12nC)
- * Low Reverse Transfer Capacitance (C_{RSS} = Typical 66pF)
- * Fast Switching Capability
- * Avalanche Energy Specified
- * Improved dv/dt Capability

SYMBOL



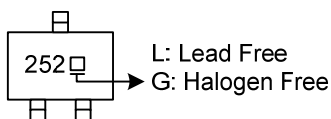
ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UML2502L-AE3-R	UML2502G-AE3-R	SOT-23	G	S	D	Tape Reel

Note: Pin Assignment: G: Gate S: Source D: Drain

<p>UF07P15G-AE3-R</p> <p>(1)Packing Type (2)Package Type (3)Green Package</p>	<p>(1) R: Tape Reel (2) AE3: SOT-23 (3) G: Halogen Free and Lead Free, L: Lead Free</p>
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MARKING



■ ABSOLUTE MAXIMUM RATINGS (T_C=25°C, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V _{DSS}	20	V
Gate-Source Voltage	V _{GSS}	±12	V
Continuous Drain Current V _{GS} =4.5V	I _D	4.2	A
Pulsed Drain Current (Note 2)	I _{DM}	33	A
Maximum Power Dissipation	P _D	1.25	W
Linear Derating Factor		0.01	W/°C
Junction Temperature	T _J	+150	°C
Storage Temperature	T _{STG}	-55 ~ +150	°C

Notes: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

2. Repetitive Rating: Pulse width limited by maximum junction temperature.

■ THERMAL CHARACTERISTICS

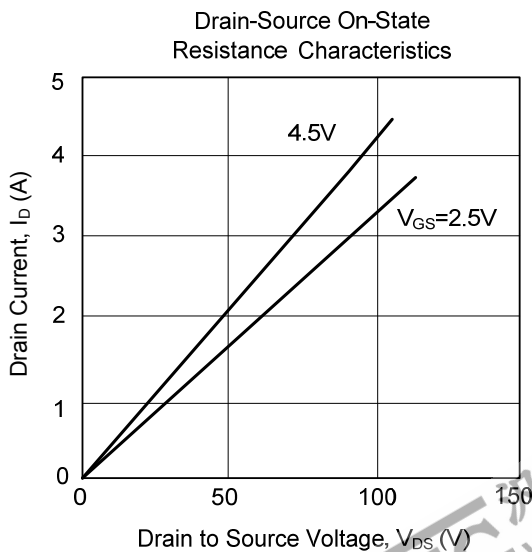
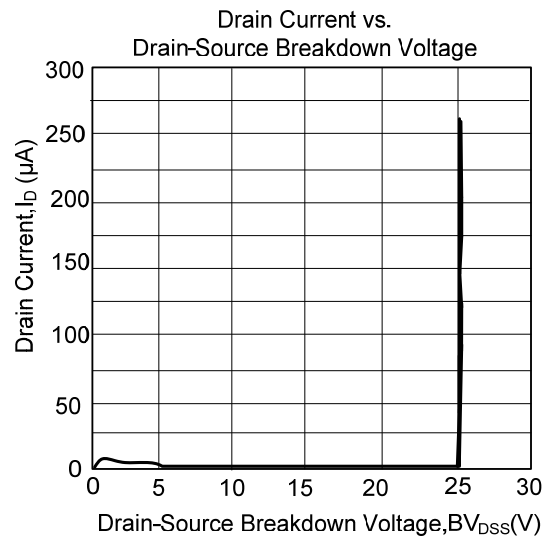
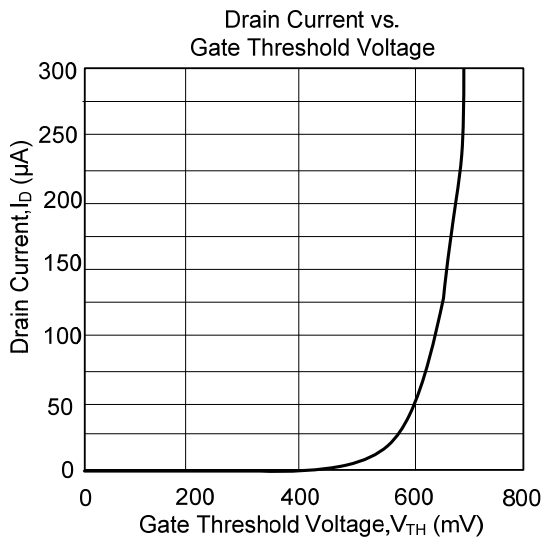
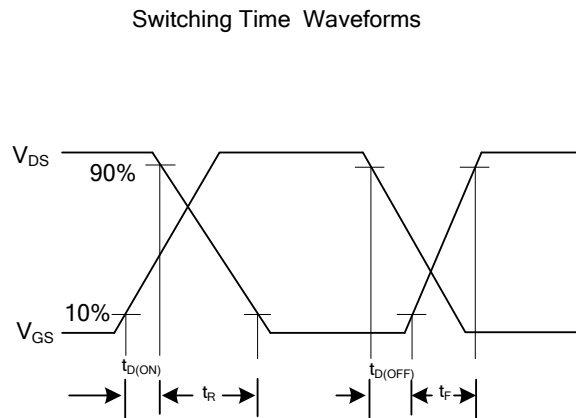
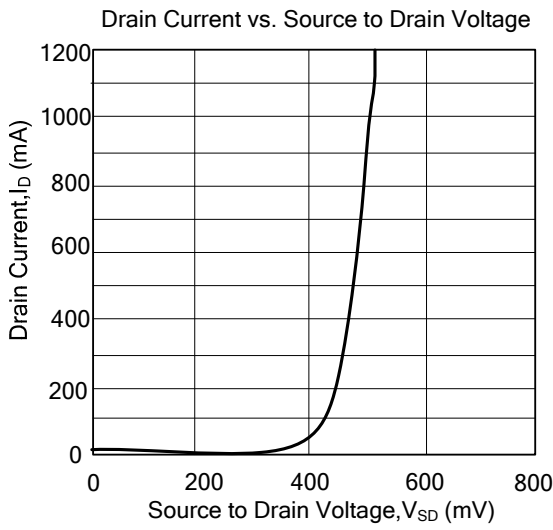
PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ _{JA}	75 ~ 100	°C/W

■ Electrical Characteristics (T_J=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250μA	20			V
Drain-Source Leakage Current	I _{DSS}	V _{GS} =0V, V _{DS} =16V			1	μA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±12V, V _{DS} =0V			±100	nA
Breakdown Voltage Temperature Coefficient	ΔBV _{DSS} /ΔT _J	Reference to 25°C, I _D =1mA		0.01		V/°C
ON CHARACTERISTICS						
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =250μA	0.6		1.2	V
Drain-Source On-State Resistance (Note)	R _{DS(ON)}	V _{GS} =4.5V, I _D =4.2A		35	45	mΩ
		V _{GS} =2.5V, I _D =3.6A		50	80	
DYNAMIC CHARACTERISTICS						
Input Capacitance	C _{ISS}	V _{GS} =0V, V _{DS} =15V, f=1.0MHz		740		pF
Output Capacitance	C _{OSS}			90		pF
Reverse Transfer Capacitance	C _{RSS}			66		pF
SWITCHING PARAMETERS						
Total Gate Charge (Note)	Q _G	V _{GS} =5.0V, V _{DS} =10V, I _D =4.0A		8.0	12	nC
Gate Source Charge	Q _{GS}			1.8	2.7	nC
Gate Drain Charge	Q _{GD}			1.7	2.6	nC
Turn-ON Delay Time (Note)	t _{D(ON)}	V _{DS} =10V, R _G =6Ω, R _D =10Ω, I _D =1.0A		7.5		ns
Turn-ON Rise Time	t _R			10		ns
Turn-OFF Delay Time	t _{D(OFF)}			54		ns
Turn-OFF Fall-Time	t _F			26		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Maximum Continuous Drain-Source Diode Forward Current	I _S				1.3	A
Maximum Pulsed Drain-Source Diode Forward Current	I _{SM}				33	A
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =1.3A, T _J =25°C (Note)			1.2	V
Reverse Recovery Time	t _{rr}	I _F =1.3A, di/dt=100A/μs,		16	24	ns
Reverse Recovery Charge	Q _{rr}	T _J =25°C (Note)		8.6	13	nC

Notes: Pulse width ≤ 300μs; duty cycle ≤ 2%.

■ TYPICAL CHARACTERISTICS



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