



UM6K31N

Preliminary

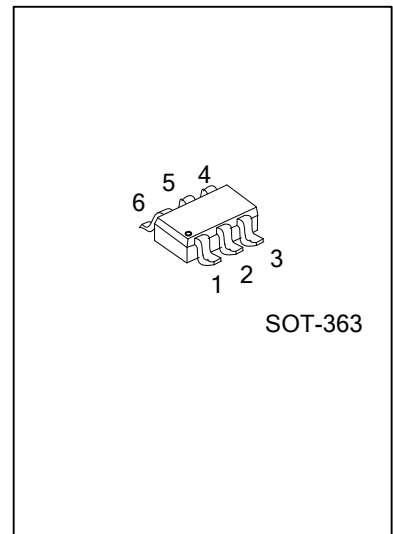
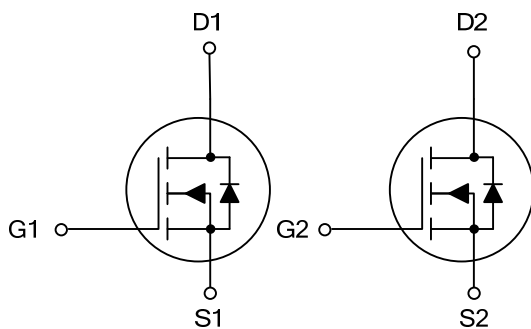
Power MOSFET

SILICON N-CHANNEL MOSFET TRANSISTOR

■ DESCRIPTION

The UTC **UM6K31N** is a silicon N-channel MOS Field Effect Transistor. It can be used in switching applications.

■ SYMBOL



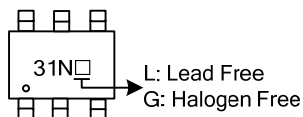
■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment						Packing
Lead Free	Halogen Free		1	2	3	4	5	6	
UM6K31NL-AL6-R	UM6K31NG-AL6-R	SOT-363	S1	G1	D2	S2	G2	D1	Tape Reel

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

<p>UM6K31NL - AL6 - R</p> <p>(1) Packing Type (2) Package Type (3) Lead Free</p>	<p>(1) R: Tape Reel (2) AL6: SOT-363 (3) L: Lead Free, G: Halogen Free</p>
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■ MARKING



■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C, it is the same rating for the Tr1 AND Tr2)

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V _{DSS}	60	V
Gate-Source Voltage	V _{GSS}	±20	V
Drain Current Continuous	Continuous	I _D	±250
	Pulsed (Note1)	I _{DP}	±1
Source Current Continuous (Body Diode)	Continuous	I _S	125
	Pulsed (Note1)	I _{SP}	1
Power Dissipation	P _D	150	mW
Channel Temperature	T _{CH}	150	°C
Strage Temperature	T _{STG}	-55~150	°C

Note: 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.

■ THERMAL RESISTANCE

PARAMETER	SYMBOL	RATINGS	UNIT
Channel to Ambient	θ _{JA}	833	°C/W

■ ELECTRICAL CHARACTERISTICS (Ta =25°C, it is the same rating for the Tr1 And Tr2)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	I _D =1mA, V _{GS} =0V	60			V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =60V, V _{GS} =0V			1	μA
Gate- Source Leakage Current	I _{GSS}	V _{GS} = ±20 V, V _{DS} =0 V			±10	μA
ON CHARACTERISTICS						
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =10V, I _D =1mA	1.0		2.5	V
Static Drain-Source On-State Resistance	R _{DS(ON)} (Note1)	V _{GS} =10V, I _D =250mA		1.7	2.4	Ω
		V _{GS} =4.5V, I _D =250mA		2.1	3.0	
		V _{GS} =4.0V, I _D =250mA		2.3	3.2	
		V _{GS} =2.5V, I _D =10mA		3.0	12.0	
DYNAMIC PARAMETERS						
Input Capacitance	C _{ISS}	V _{GS} =0V, V _{DS} =25V, f=1MHz		15		pF
Output Capacitance	C _{OSS}			4.5		pF
Reverse Transfer Capacitance	C _{RSS}			2.0		pF
SWITCHING PARAMETERS						
Turn-ON Delay Time	t _{D(ON)} (Note1)	I _D =100mA, V _{DD} ≒ 30V, V _{GS} =10V, R _L ≒ 300Ω, R _G =10Ω See Fig 1-1.1-2		3.5		ns
Rise Time	t _R (Note1)			5		ns
Turn-OFF Delay Time	t _{D(OFF)} (Note1)			18		ns
Fall-Time	t _F (Note1)			28		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Drain-Source Diode Forward Voltage	V _{SD} (Note1)	I _S =250mA, V _{GS} =0V			1.2	V
Forward Transfer Admittance	Y _{fs} (Note1)	V _{DS} =10V, I _D =250mA	0.25			S

Note1: PW≤10μs DUTY CYCLE≤1%

■ TEST CIRCUIT

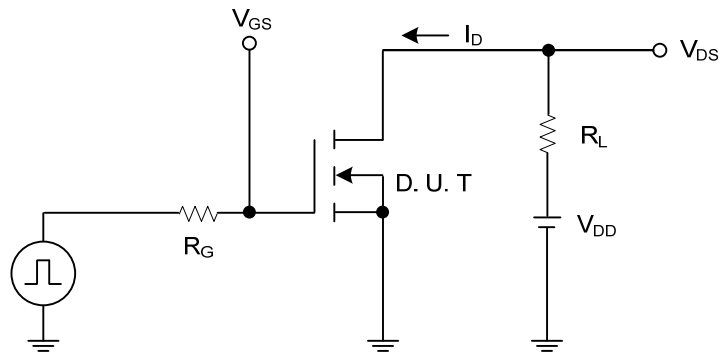


Fig.1-1 Switching Time Measurement Circuit

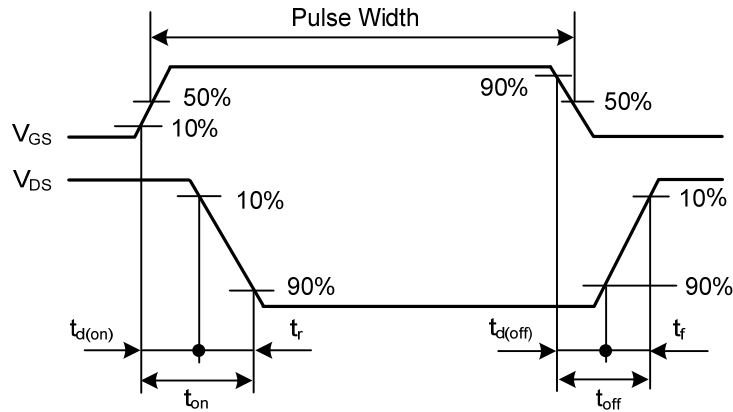


Fig.1-2 Switching Waveforms

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