



UT4101

Power MOSFET

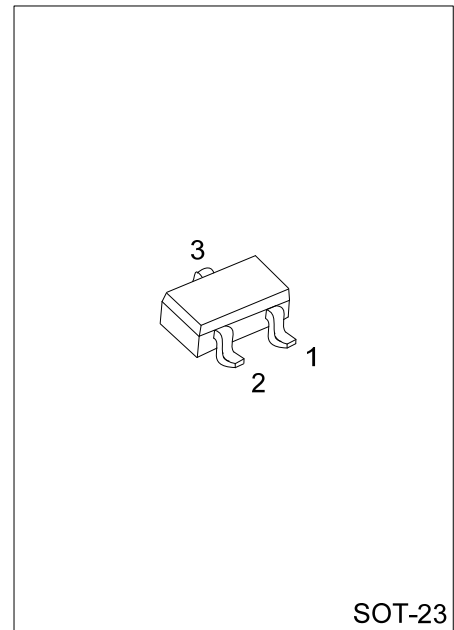
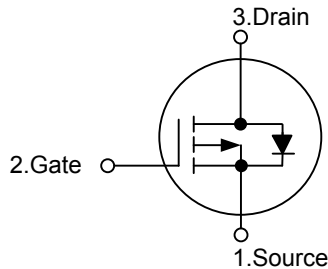
P-CHANNEL ENHANCEMENT MODE

DESCRIPTION

The UTC **UT4101** is P-channel enhancement mode Power MOSFET, designed with high density cell, with fast switching speed, low on-resistance, excellent thermal and electrical capabilities and operation with low gate voltages.

This device is suitable for use as a load switch or in PWM applications.

SYMBOL

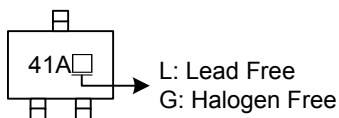


ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UT4101L-AE3-R	UT4101G-AE3-R	SOT-23	S	G	D	Tape Reel

<p>UT4101L-AE3-R</p>	<p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Lead Plating</p>	<p>(1) R: Tape Reel</p> <p>(2) AE3: SOT-23</p> <p>(3) G: Halogen Free, L: Lead Free</p>
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MARKING



■ ABSOLUTE MAXIMUM RATINGS ($T_J = 25^\circ\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	RATING	UNITS
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	± 8.0	V
Continuous Drain Current (Note 3)	I_D	-2.4	A
Pulsed Drain Current (Note 1, 2)	I_{DM}	-7.5	A
Total Power Dissipation	P_D	0.73	W
Junction Temperature	T_J	+150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55 ~ +150	$^\circ\text{C}$

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 DATA

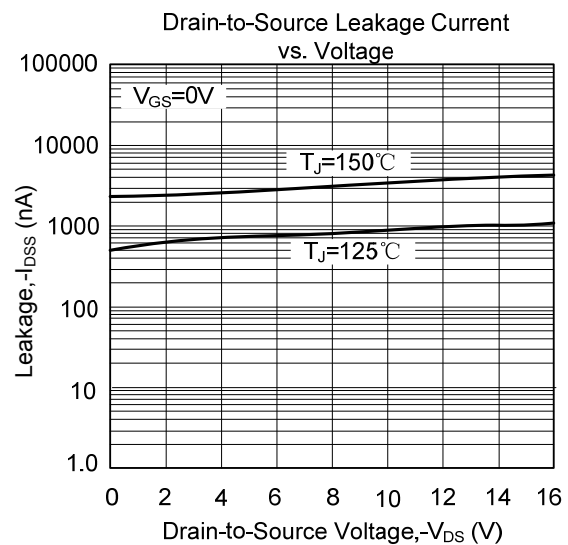
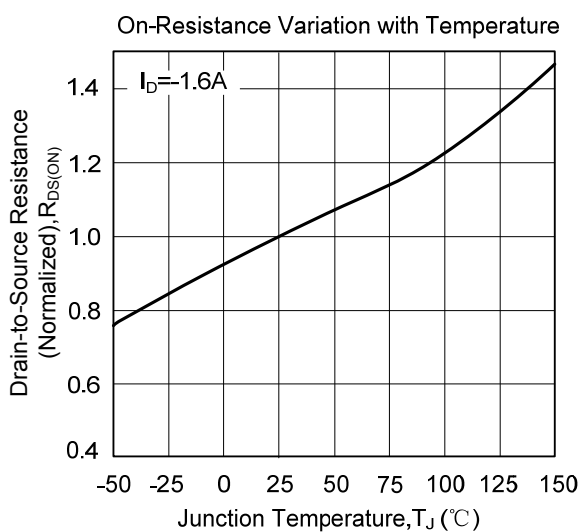
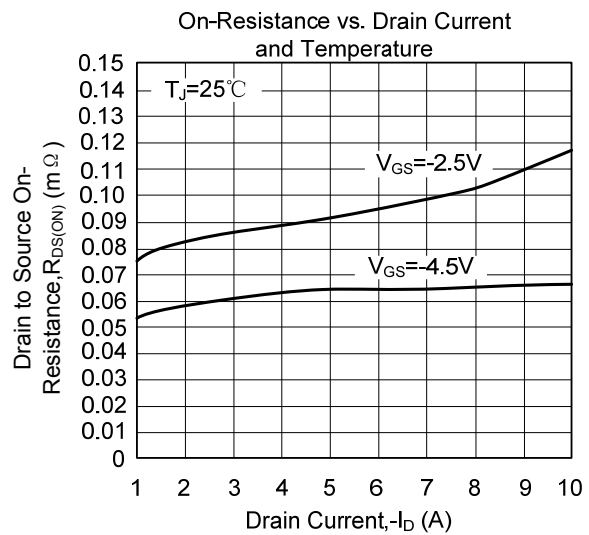
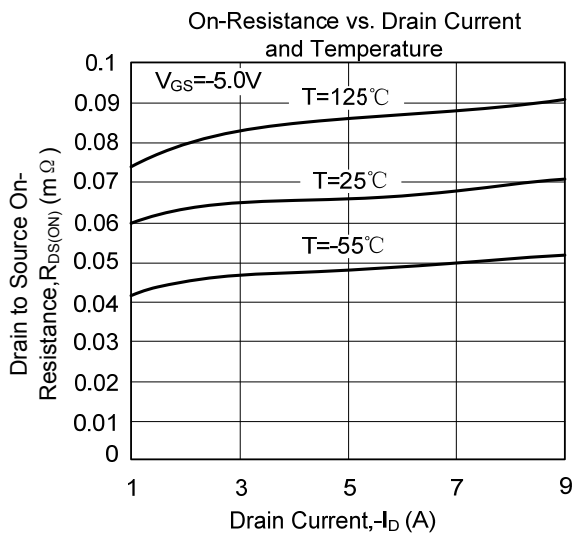
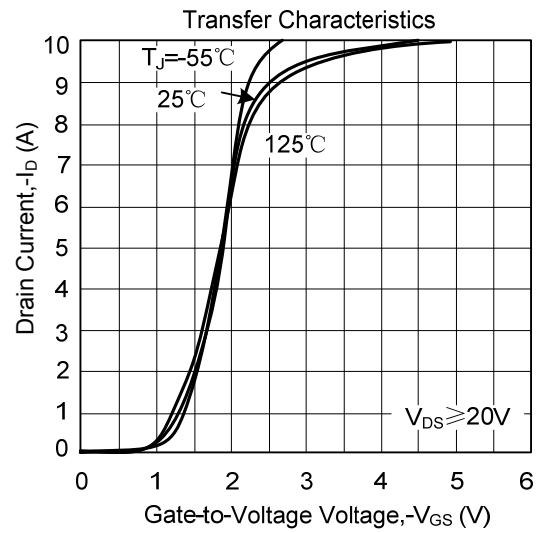
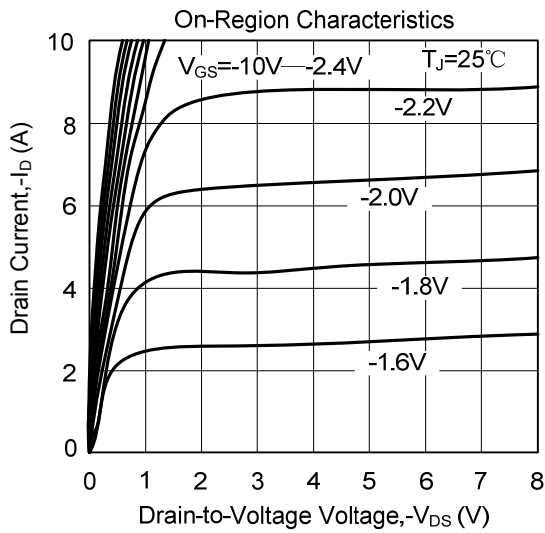
PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Junction-to-Ambient				170	$^\circ\text{C}/\text{W}$

■ ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$, unless otherwise specified)

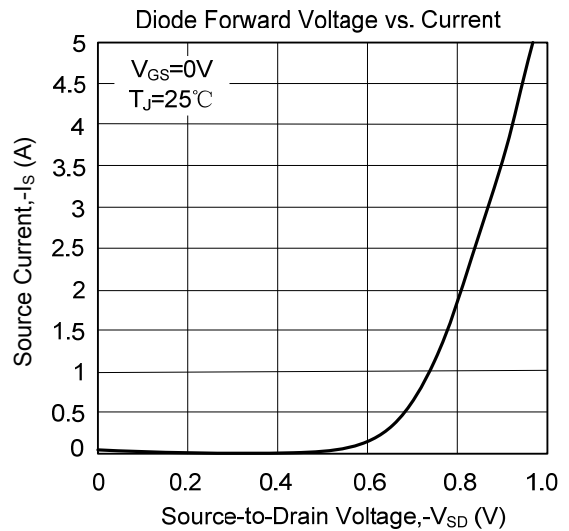
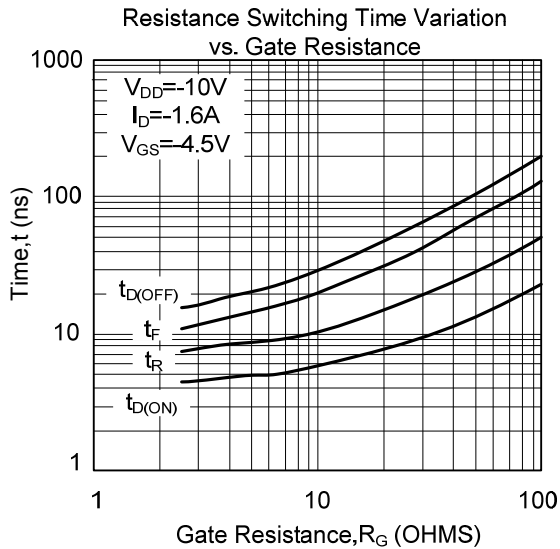
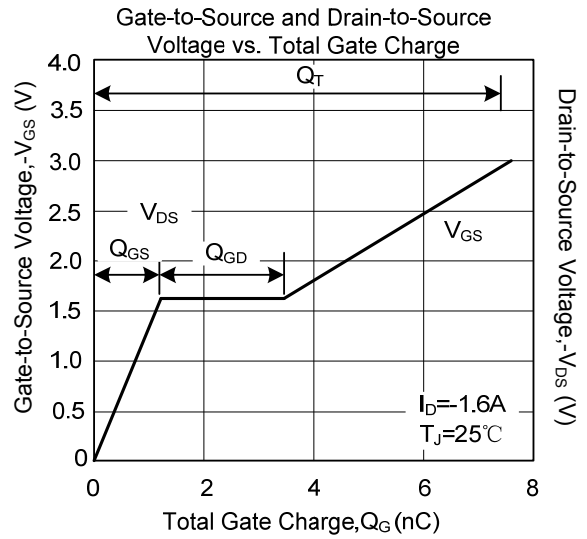
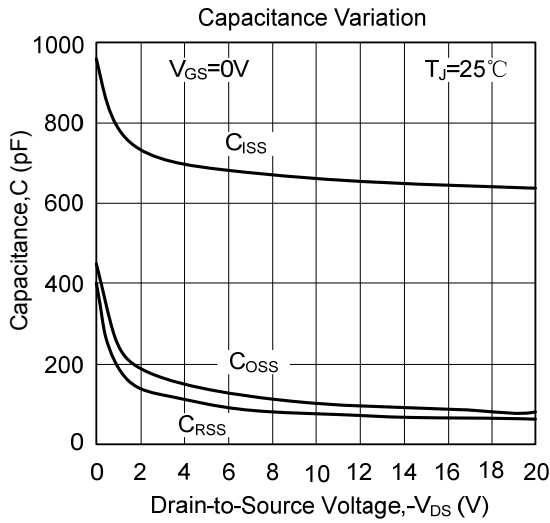
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS} = 0\text{ V}, I_D = -250\mu\text{A}$	-20			V
Drain-Source Leakage Current	I_{DSS}	$V_{DS} = -16\text{ V}, V_{GS} = 0\text{ V}$			-1.0	μA
Gate-Source Leakage Current	I_{GSS}	$V_{DS} = 0\text{ V}, V_{GS} = \pm 8.0\text{ V}$			± 100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS} = V_{GS}, I_D = -250\mu\text{A}$	-0.40	-0.72	-1.5	V
Drain-Source On-State Resistance (Note 2)	$R_{DS(ON)}$	$V_{GS} = -4.5\text{ V}, I_D = -1.6\text{ A}$		70	85	m Ω
		$V_{GS} = -2.5\text{ V}, I_D = -1.3\text{ A}$		90	120	
		$V_{GS} = -1.8\text{ V}, I_D = -0.9\text{ A}$		112	210	
DYNAMIC PARAMETERS						
Input Capacitance	C_{ISS}	$V_{DS} = -10\text{ V}, V_{GS} = 0\text{ V}, f = 1\text{MHz}$		675		pF
Output Capacitance	C_{OSS}			100		
Reverse Transfer Capacitance	C_{RSS}			75		
SWITCHING PARAMETERS						
Turn-ON Delay Time	$t_{D(ON)}$	$V_{GS} = -4.5\text{ V}, V_{DS} = -10\text{ V}, R_G = 6.0\Omega, I_D = -1.6\text{ A}$		7.5		ns
Turn-ON Rise Time	t_R			12.6		
Turn-OFF Delay Time	$t_{D(OFF)}$			30.2		
Turn-OFF Fall-Time	t_F			21.0		
Gate Charge	Q_G	$V_{DS} = -10\text{ V}, V_{GS} = -4.5\text{ V}, I_D = -1.6\text{ A}$		7.5	8.5	nC
Gate Source Charge	Q_{GS}	$V_{DS} = -10\text{ V}, I_D = -1.6\text{ A}$		1.2		
Gate Drain Charge	Q_{GD}			2.2		
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Drain-Source Diode Forward Voltage(Note2)	V_{SD}	$V_{GS} = 0\text{ V}, I_S = -2.4\text{ A}$		-0.82	-1.2	V
Maximum Continuous Drain-Source Diode Forward Current	I_S				-2.4	A
Reverse Recovery Time	t_{RR}	$V_{GS} = 0\text{ V}, dI_{SD}/dt = 100\text{ A}/\mu\text{s}, I_S = -1.6\text{ A}$		12.8	15	ns
Reverse Recovery Charge	Q_{RR}			1008		nC

Note: 1. Pulse width limited by $T_{J(MAX)}$
 2. Pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.
 3. Surface mounted on 1 in² copper pad of FR4 board

TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS(Cont.)



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