



UT4101

Power MOSFET

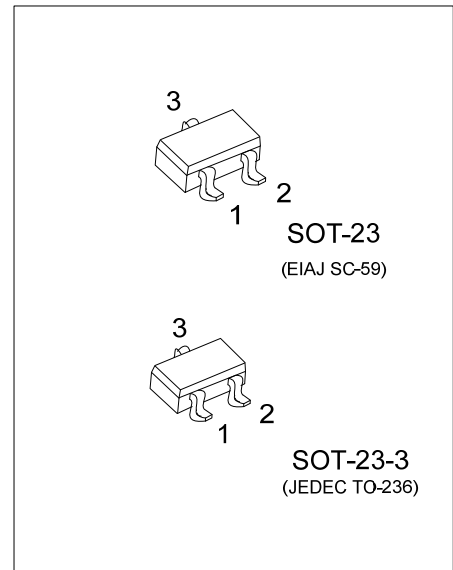
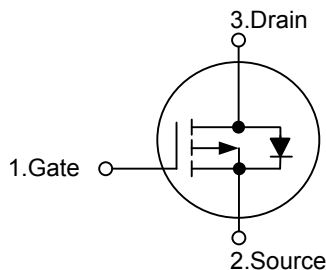
P-CHANNEL ENHANCEMENT MODE

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



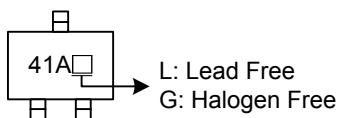
ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UT4101L-AE2-R	UT4101G-AE2-R	SOT-23-3	G	S	D	Tape Reel
UT4101L-AE3-R	UT4101G-AE3-R	SOT-23	G	S	D	Tape Reel

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

UT4101G-AE2-R		(1) Packing Type	(1) R: Tape Reel
		(2) Package Type	(2) AE2: SOT-23-3, AE3: SOT-23
		(3) Green Package	(3) G: Halogen Free and Lead Free, L: Lead Free

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
Power Dissipation	SOT-23-3	P_D	0.65
	SOT-23		0.67
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	RATING	UNIT
Junction-to-Ambient	SOT-23-3	θ_{JA}	190
	SOT-23		185

Note: Device mounted on FR-4 substrate P_c board, 2oz copper, with 1inch square copper plate.

■ 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} =0V, I _D =-250μA	-20			V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =-16V, V _{GS} =0V			-1.0	μA
Gate-Source Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±8.0V			±100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =-250μA	-0.40		-1.5	V
Drain-Source On-State Resistance (Note 2)	R _{DS(ON)}	V _{GS} =-4.5V, I _D =-1.6A		70	85	mΩ
		V _{GS} =-2.5V, I _D =-1.3A		90	120	mΩ
		V _{GS} =-1.8V, I _D =-0.9A		125	210	mΩ
DYNAMIC PARAMETERS						
Input Capacitance	C _{ISS}	V _{DS} =-10V, V _{GS} =0V, f=1MHz		520		pF
Output Capacitance	C _{OSS}			125		pF
Reverse Transfer Capacitance	C _{RSS}			106		pF
SWITCHING PARAMETERS						
Gate Charge	Q _G	V _{DS} =-10V, V _{GS} =-4.5V, I _D =-1.6A		8.6		nC
Gate Source Charge	Q _{GS}	V _{DS} =-10V, I _D =-1.6A		1.26		nC
Gate Drain Charge	Q _{GD}			2.2		nC
Turn-ON Delay Time	t _{D(ON)}	V _{GS} =-10V, V _{DS} =-10V, , I _D =-1.6A, R _G =6.0Ω		4		ns
Turn-ON Rise Time	t _R			16		ns
Turn-OFF Delay Time	t _{D(OFF)}			31		ns
Turn-OFF Fall-Time	t _F			23		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Maximum Continuous Drain-Source Diode Forward Current	I _S				-2.4	A
Drain-Source Diode Forward Voltage (Note2)	V _{SD}	V _{GS} =0V, I _S =-2.4 A		-0.82	-1.2	V

Notes: 1. Repetitive Rating : Pulse width limited by maximum junction temperature.

2. Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.

3. Surface mounted on 1 in² copper pad of FR4 board.

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