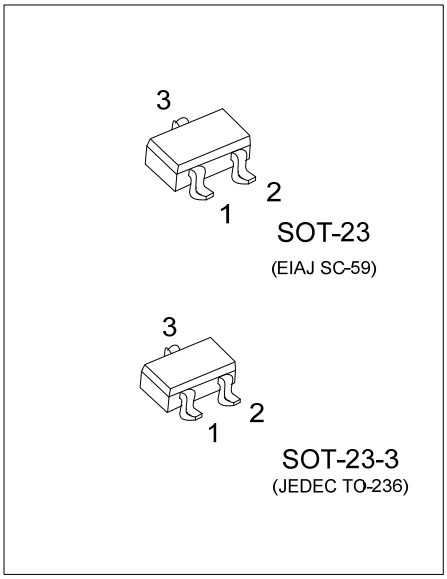
UT4101

Power MOSFET

P-CHANNEL ENHANCEMENT MODE

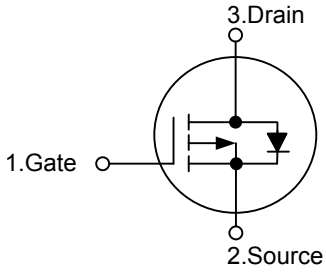


■ DESCRIPTION

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.

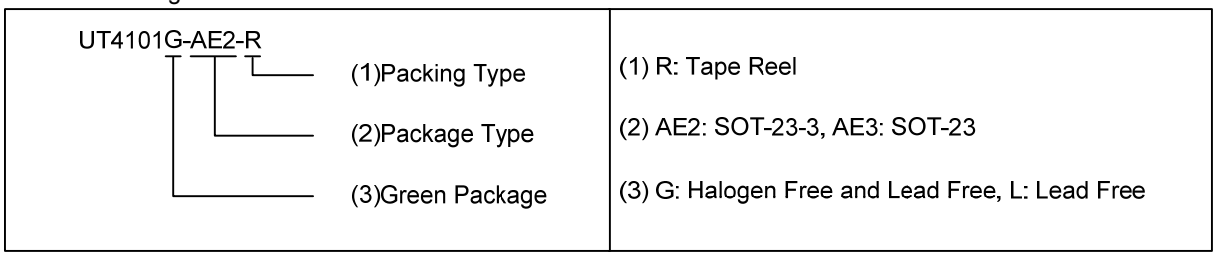
■ SYMBOL



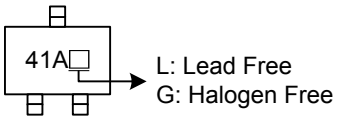
■ ORDERING INFORMATION

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



■ MARKING



■ ABSOLUTE MAXIMUM RATINGS (T_J = 25°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	W
	SOT-23		0.67	W
Junction Temperature		T_J	+150	°C
Storage 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 DATA

PARAMETER		SYMBOL	RATING	UNIT
Junction-to-Ambient	SOT-23-3	θ_{JA}	190	°C/W
	SOT-23		185	°C/W

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

■ ELECTRICAL CHARACTERISTICS (T_A =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_{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 ≤ 300us, duty cycle ≤ 2%.
3. Surface mounted on 1 in^2 copper pad of FR4 board.