



## UTR4502

Power MOSFET

### -1.95Amps, -30Volts P-CHANNEL POWER MOSFET

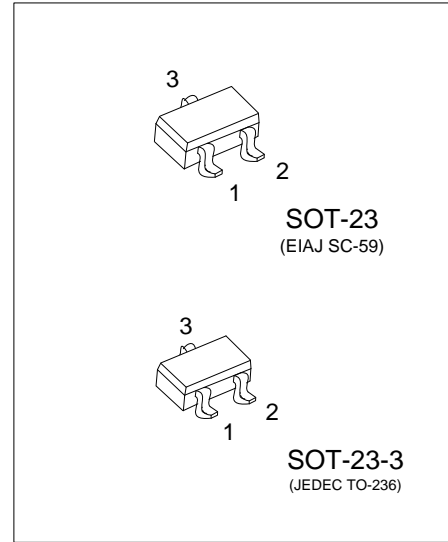
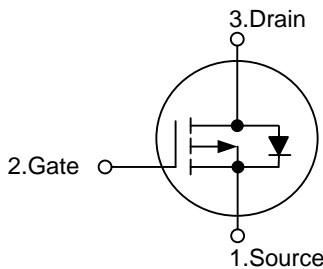
#### DESCRIPTION

The UTR4502 uses UTC advanced 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

- \*  $R_{DS(ON)} \leq 155 \text{ m}\Omega$  @  $V_{GS} = -10\text{V}$ ,  $I_D = -1.95\text{A}$
- \*  $R_{DS(ON)} \leq 240 \text{ m}\Omega$  @  $V_{GS} = -4.5\text{V}$ ,  $I_D = -1.5\text{A}$
- \* Low capacitance
- \* Optimized gate charge
- \* Fast switching capability
- \* Avalanche energy specified

#### SYMBOL



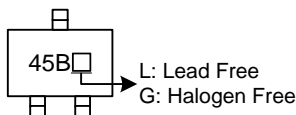
#### ORDERING INFORMATION

Order Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UTR4502L-AE2-R	UTR4502G-AE2-R	SOT-23-3	G	S	D	Tape Reel
UTR4502L-AE3-R	UTR4502G-AE3-R	SOT-23	G	S	D	Tape Reel

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

<p>UTR4502G-AE2-R</p> <p>(1) Packing Type (2) Package Type (3) Green Package</p>	<p>(1) R: Tape Reel (2) AE2: SOT-23-3, AE3: SOT-23 (3) G: Halogen Free and Lead Free , L: Lead Free</p>
--	---

#### MARKING



## ■ ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub>=25°C, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V <sub>DSS</sub>	-30	V
Gate-Source Voltage	V <sub>GSS</sub>	±20	V
Continuous Drain Current (Note 3)	I <sub>D</sub>	-1.13	A
Pulsed Drain Current (Note 1, 2)	I <sub>DM</sub>	-6.8	A
Total Power Dissipation	P <sub>D</sub>	0.4	W
Junction Temperature	T <sub>J</sub>	+150	°C
Storage Temperature	T <sub>STG</sub>	-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	MIN	TYP	MAX	UNIT
Junction-to-Ambient	θ <sub>JA</sub>			300	°C/W

## ■ ELECTRICAL CHARACTERISTICS (T<sub>J</sub> =25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
<b>OFF CHARACTERISTICS</b>						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	V <sub>GS</sub> =0 V, I <sub>D</sub> =-250μA	-30			V
Drain-Source Leakage Current	I <sub>DSS</sub>	V <sub>DS</sub> =-30V, V <sub>GS</sub> =0V			-1	μA
Gate-Source Leakage Current	I <sub>GSS</sub>	V <sub>DS</sub> =0V, V <sub>GS</sub> =±20V			±100	nA
<b>ON CHARACTERISTICS (Note 3)</b>						
Gate Threshold Voltage	V <sub>GS(TH)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =-250μA	-1.0		-3.0	V
Static Drain-Source On-Resistance (Note 2)	R <sub>DS(ON)</sub>	V <sub>GS</sub> =-10V, I <sub>D</sub> =-1.95A			200	mΩ
		V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-1.5A			350	
<b>DYNAMIC PARAMETERS</b>						
Input Capacitance	C <sub>ISS</sub>	V <sub>DS</sub> =-15V, V <sub>GS</sub> =0V, f=1MHz		175		pF
Output Capacitance	C <sub>OSS</sub>			43		pF
Reverse Transfer Capacitance	C <sub>RSS</sub>			34		pF
<b>SWITCHING PARAMETERS (Note 4)</b>						
Total Gate Charge	Q <sub>G</sub>	V <sub>DS</sub> =-15V, V <sub>GS</sub> =-10V, I <sub>D</sub> =-1.95A		6.2		nC
Gate Source Charge	Q <sub>GS</sub>			1.5		nC
Gate Drain Charge	Q <sub>GD</sub>			0.8		nC
Turn-ON Delay Time	t <sub>D(ON)</sub>	V <sub>GS</sub> =-10V, V <sub>DD</sub> =-15V, I <sub>D</sub> =-1.95A, R <sub>GEN</sub> =6Ω		3		ns
Turn-ON Rise Time	t <sub>R</sub>			14.5		ns
Turn-OFF Delay Time	t <sub>D(OFF)</sub>			10		ns
Turn-OFF Fall-Time	t <sub>F</sub>			18		ns
<b>SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS (Note 3)</b>						
Drain-Source Diode Forward Voltage(Note2)	V <sub>SD</sub>	I <sub>S</sub> =-1.25A, V <sub>GS</sub> =0V			-1.2	V

Note: 1. Pulse width limited by T<sub>J(MAX)</sub>  
 2. Pulse width ≤300us, duty cycle ≤2%.

UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. UTC reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof.