



UTR4502

Power MOSFET

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

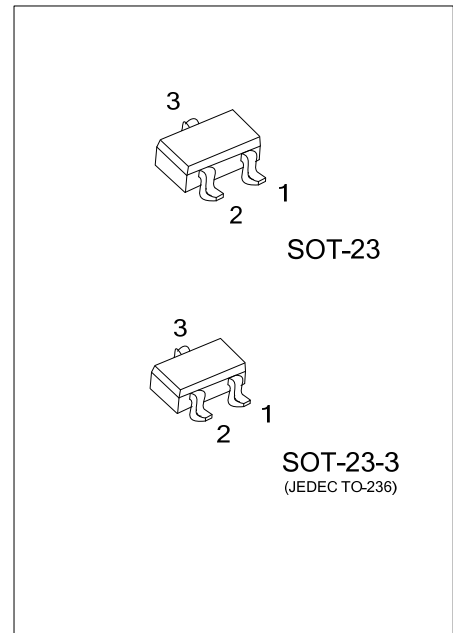
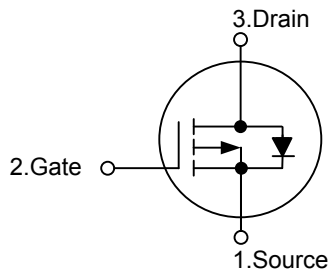
■ DESCRIPTION

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

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

■ SYMBOL

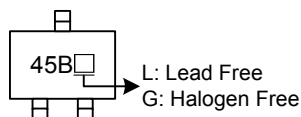


■ ORDERING INFORMATION

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

<p>UTR4502L-AE3-R</p> <p>(1) Packing Type (2) Package Type (3) Lead Free</p>	<p>(1) R: Tape Reel (2) AE2: SOT-23-3, AE3: SOT-23 (3) G: Halogen Free, L: Lead Free</p>
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■ MARKING



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

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current (Note 3)	I_D	-1.13	A
Pulsed Drain Current (Note 1, 2)	I_{DM}	-6.8	A
Total Power Dissipation	P_D	0.4	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

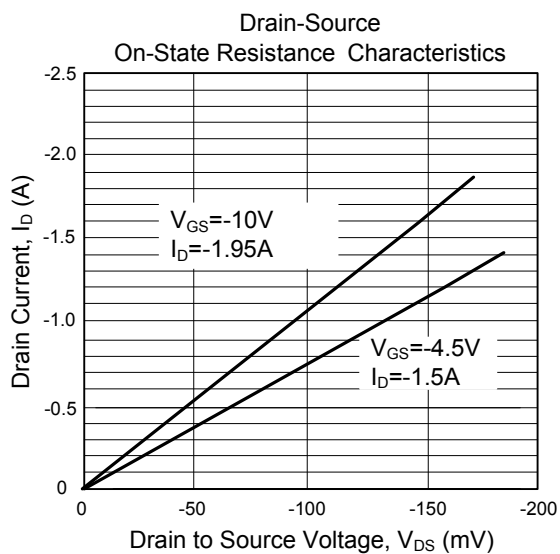
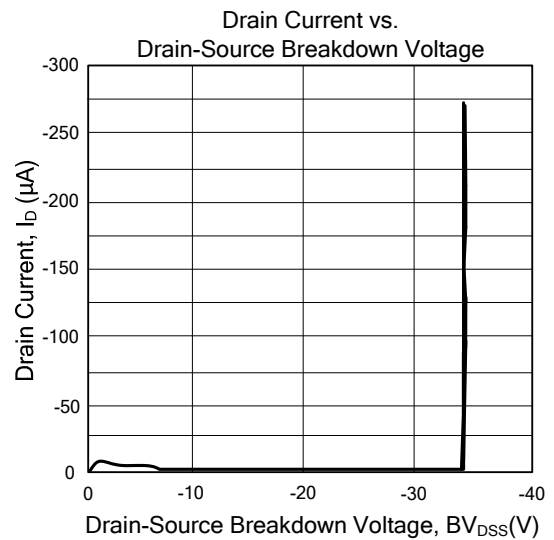
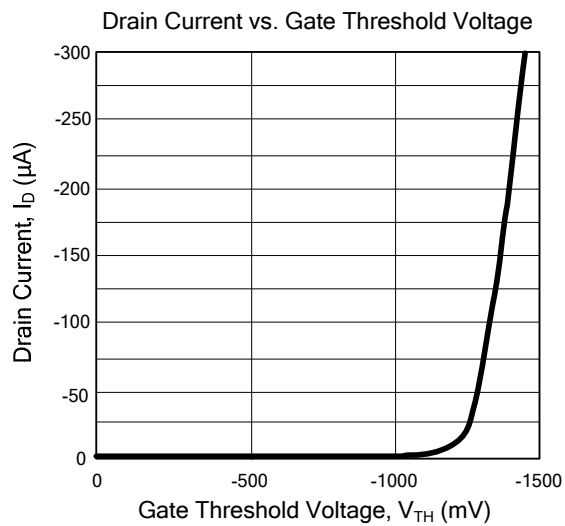
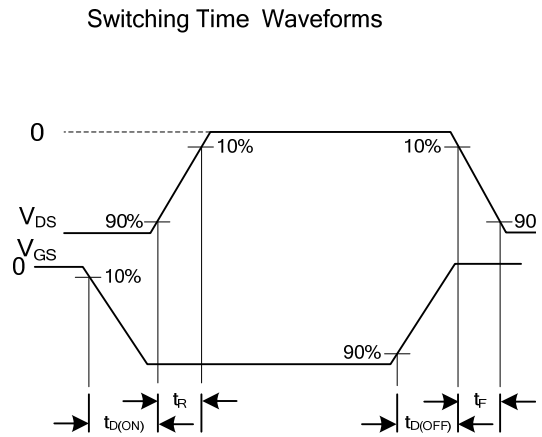
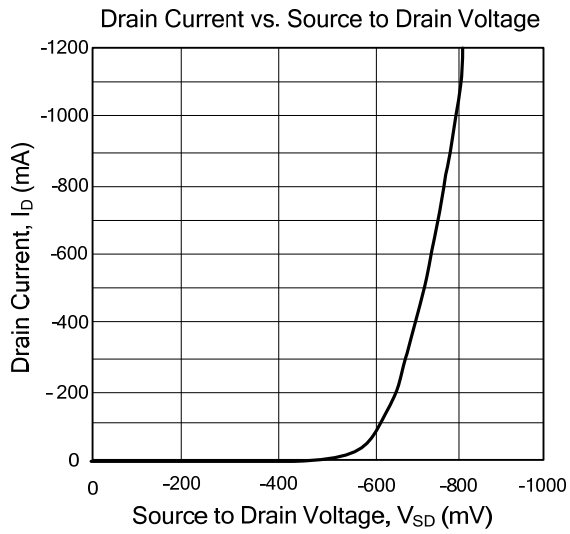
PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Junction-to-Ambient	θ_{JA}			300	$^{\circ}\text{C}/\text{W}$

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0\text{V}, I_D=-250\mu\text{A}$	-30			V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=-30\text{V}, V_{GS}=0\text{V}$			-1	μA
Gate-Source Leakage Current	I_{GSS}	$V_{DS}=0\text{V}, V_{GS}=\pm 20\text{V}$			± 100	nA
ON CHARACTERISTICS (Note 3)						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS}=V_{GS}, I_D=-250\mu\text{A}$	-1.0		-3.0	V
Static Drain-Source On-Resistance (Note 2)	$R_{DS(ON)}$	$V_{GS}=-10\text{V}, I_D=-1.95\text{A}$		155	200	m Ω
		$V_{GS}=-4.5\text{V}, I_D=-1.5\text{A}$		240	350	
DYNAMIC PARAMETERS						
Input Capacitance	C_{ISS}	$V_{DS}=-15\text{V}, V_{GS}=0\text{V}, f=1\text{MHz}$		200		pF
Output Capacitance	C_{OSS}			80		pF
Reverse Transfer Capacitance	C_{RSS}			50		pF
SWITCHING PARAMETERS (Note 4)						
Turn-ON Delay Time	$t_{D(ON)}$	$V_{GS}=-10\text{V}, V_{DD}=-15\text{V}, I_D=-1.95\text{A}, R_{GEN}=6\Omega$		5.2	10	ns
Turn-ON Rise Time	t_R			12	24	ns
Turn-OFF Delay Time	$t_{D(OFF)}$			19	96	ns
Turn-OFF Fall-Time	t_F			17.5	48	ns
Total Gate Charge	$Q_{G(TOT)}$	$V_{DS}=-15\text{V}, V_{GS}=-10\text{V}, I_D=-1.95\text{A}$		6	10	nC
Threshold Gate Charge	$Q_{G(TH)}$			0.3		nC
Gate Source Charge	Q_{GS}			1		nC
Gate Drain Charge	Q_{GD}			1.7		nC
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS (Note 3)						
Drain-Source Diode Forward Voltage(Note2)	V_{SD}	$I_S=-1.25\text{A}, V_{GS}=0\text{V}$		-0.8	-1.2	V
Reverse Recovery Time	t_{RR}	$V_{GS}=0\text{V}, dI_{SD}/dt=100\text{A/s}, I_S=-1.25\text{A}$		23		ns

Note: 1. Pulse width limited by $T_{J(MAX)}$
 2. Pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.

TYPICAL CHARACTERISTICS



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