



# UT3403

**Power MOSFET**

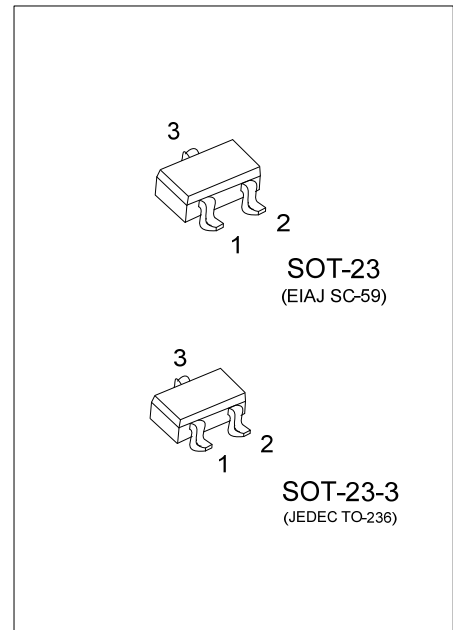
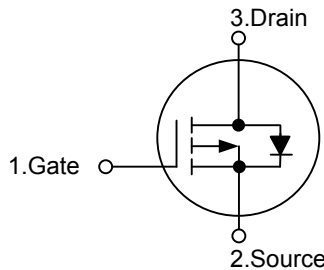
-2.6 Amps, 30 Volts  
P-CHANNEL POWER MOSFET

■ DESCRIPTION

The UTC **UT3403** 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



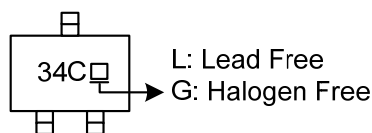
■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UT3403L-AE2-R	UT3403G-AE2-R	SOT-23-3	G	S	D	Tape Reel
UT3403L-AE3-R	UT3403G-AE3-R	SOT-23	G	S	D	Tape Reel

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

<p>UT3403G-AE3-R</p>	<p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Green Package</p>	<p>(1) R: Tape Reel</p> <p>(2) AE2: SOT-23-3, AE3: SOT-23</p> <p>(3) G: Halogen Free and Lead Free, L: Lead Free</p>
----------------------	--	--

■ MARKING



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

PARAMETER	SYMBOL	RATING	UNITS
Drain-Source Voltage	$V_{DSS}$	-30	V
Gate-Source Voltage	$V_{GSS}$	$\pm 12$	V
Continuous Drain Current (Note 3)	$I_D$	-2.6	A
Pulsed Drain Current (Note 1)	$I_{DM}$	-20	A
Power Dissipation(Note 3)	$P_D$	1.4	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 CHARACTERISTICS

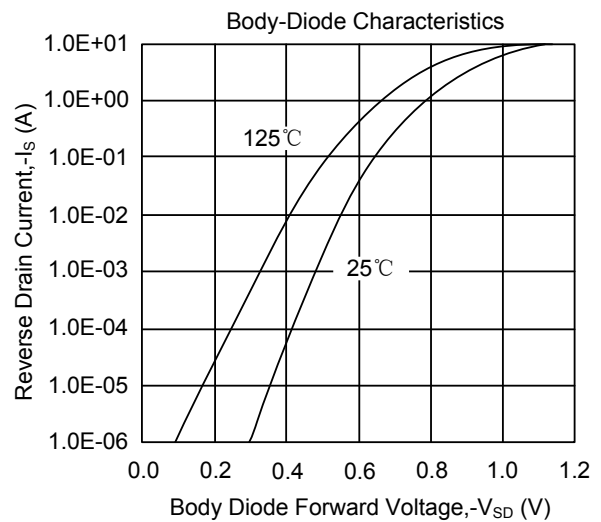
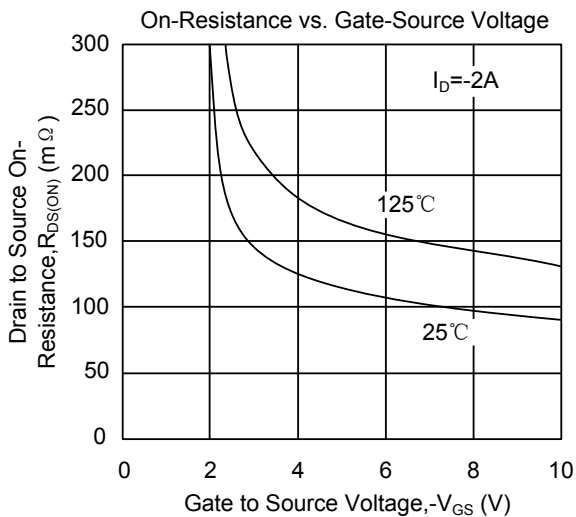
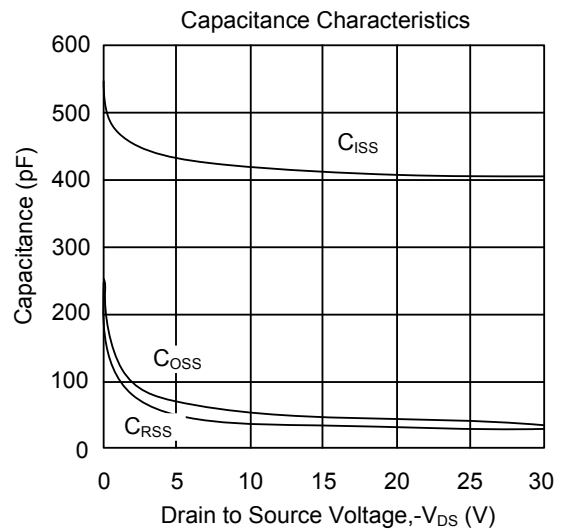
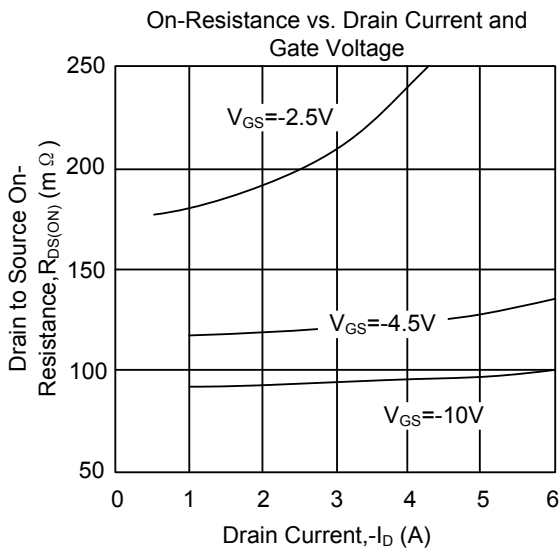
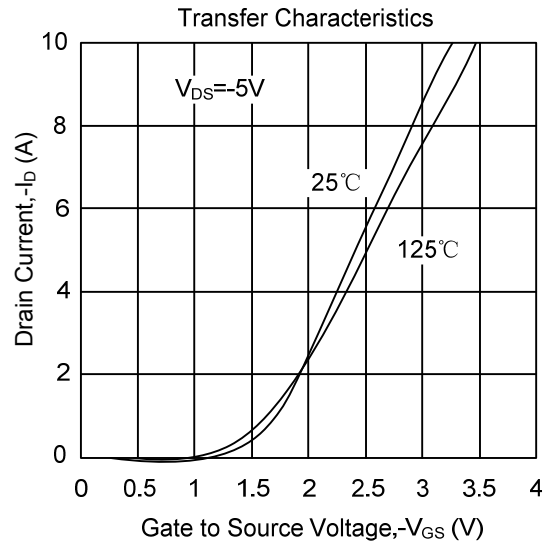
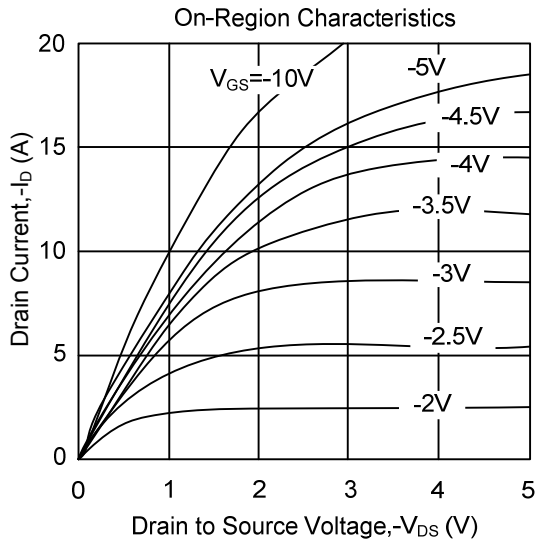
PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Junction to Ambient (Note 3)	$\theta_{JA}$		100	125	$^\circ\text{C/W}$

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

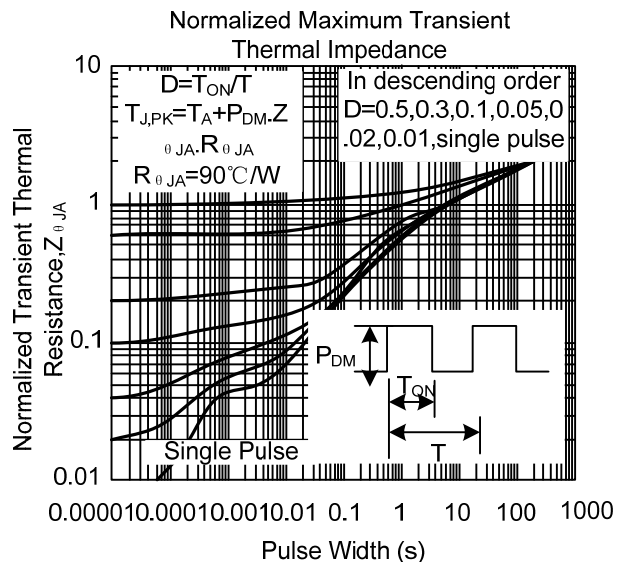
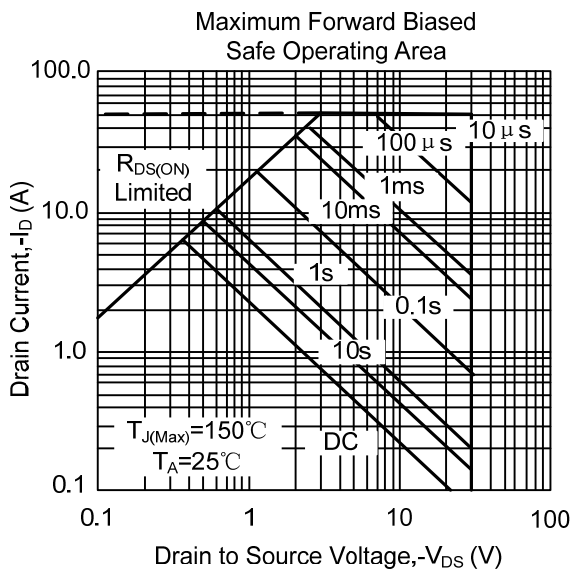
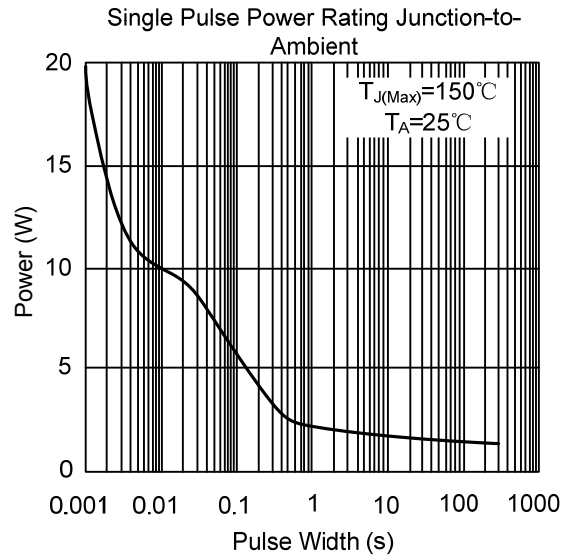
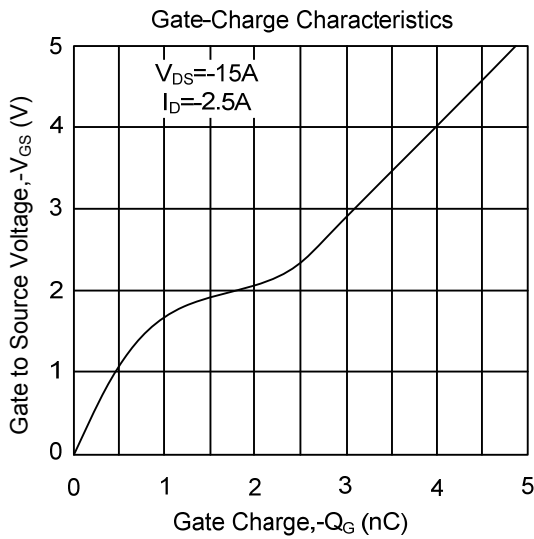
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
<b>OFF CHARACTERISTICS</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	$I_D = -250\mu\text{A}, V_{GS} = 0\text{V}$	-30			V
Drain-Source Leakage Current	$I_{DSS}$	$V_{DS} = -24\text{V}, V_{GS} = 0\text{V}$			-1	$\mu\text{A}$
Gate-Source Leakage Current	$I_{GSS}$	$V_{DS} = 0\text{V}, V_{GS} = \pm 12\text{V}$			$\pm 100$	nA
<b>ON CHARACTERISTICS</b>						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS} = V_{GS}, I_D = -250\mu\text{A}$	-0.6	-1	-1.4	V
Drain-Source On-State Resistance (Note 2)	$R_{DS(ON)}$	$V_{GS} = -10\text{V}, I_D = -2.6\text{A}$		102	130	m $\Omega$
		$V_{GS} = -4.5\text{V}, I_D = -2\text{A}$		128	180	m $\Omega$
		$V_{GS} = -2.5\text{V}, I_D = -1\text{A}$		187	260	m $\Omega$
<b>DYNAMIC PARAMETERS</b>						
Input Capacitance	$C_{ISS}$	$V_{GS} = 0\text{V}, V_{DS} = -15\text{V}, f = 1\text{MHz}$		409	500	pF
Output Capacitance	$C_{OSS}$			55		pF
Reverse Transfer Capacitance	$C_{RSS}$			42		pF
<b>SWITCHING PARAMETERS</b>						
Turn-ON Delay Time (Note 2)	$t_{D(ON)}$	$V_{GS} = -10\text{V}, V_{DS} = -15\text{V}$ $R_L = 6\Omega, R_G = 3\Omega$		5.3	8	ns
Turn-ON Rise Time	$t_R$			4.4	9	ns
Turn-OFF Delay Time	$t_{D(OFF)}$			31.5	45	ns
Turn-OFF Fall Time	$t_F$			8	16	ns
Total Gate Charge (Note 2)	$Q_G$	$V_{GS} = -4.5\text{V}, V_{DS} = -15\text{V},$ $I_D = -2.5\text{A}$		4.4	5.3	nC
Gate-Source Charge	$Q_{GS}$			0.8		nC
Gate-Drain Charge	$Q_{GD}$			1.32		nC
<b>SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS</b>						
Drain-Source Diode Forward Voltage(Note2)	$V_{SD}$	$V_{GS} = 0\text{V}, I_S = -1\text{A}$		-0.85	-1	V
Maximum Continuous Drain-Source Diode Forward Current	$I_S$				-2	A
Reverse Recovery Time	$t_{RR}$	$I_F = -2.5\text{A}, di/dt = 100\text{A}/\mu\text{s}$		15.8	19	ns
Reverse Recovery Charge	$Q_{RR}$				8	12

Notes: 1. Repetitive Rating : Pulse width limited by maximum junction temperature.  
 2. Pulse width  $\leq 300\mu\text{s}$ , duty cycle  $\leq 2\%$ .  
 3. Surface mounted on 1 in<sup>2</sup> copper pad of FR4 board

## TYPICAL CHARACTERISTICS



## ■ TYPICAL CHARACTERISTICS (Cont.)



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.