



UT3404

Power MOSFET

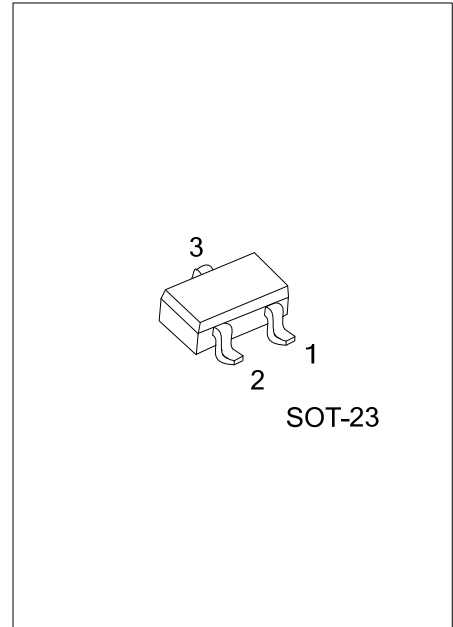
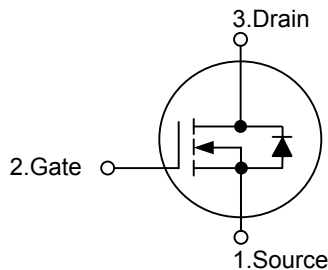
N-CHANNEL ENHANCEMENT MODE MOSFET

DESCRIPTION

The **UT3404** is N-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

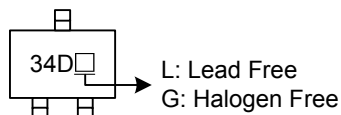


ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UT3404L-AE3-R	UT3404G-AE3-R	SOT-23	S	G	D	Tape Reel

UT3404L-AE3-R		(1)Packing Type	(1) R: Tape Reel
		(2)Package Type	(2) AE3: SOT-23
		(3)Lead Plating	(3) G: Halogen Free, L: Lead Free

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	5.8	A
Pulsed Drain Current (Note 1, 2)	I_{DM}	20	A
Power Dissipation	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 DATA

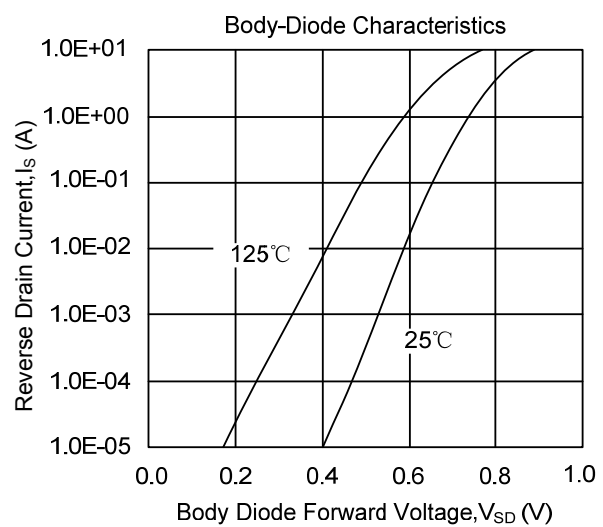
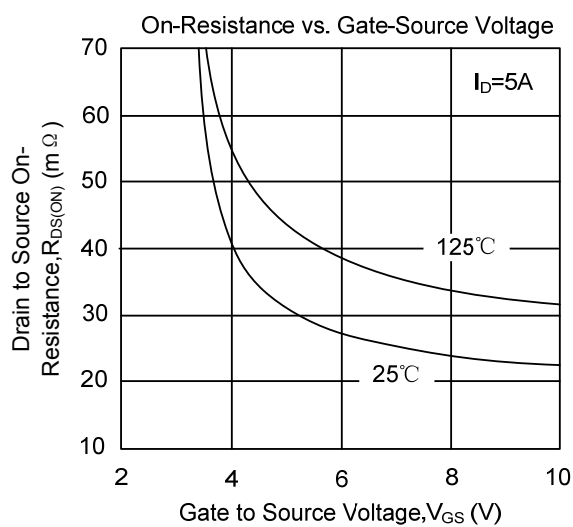
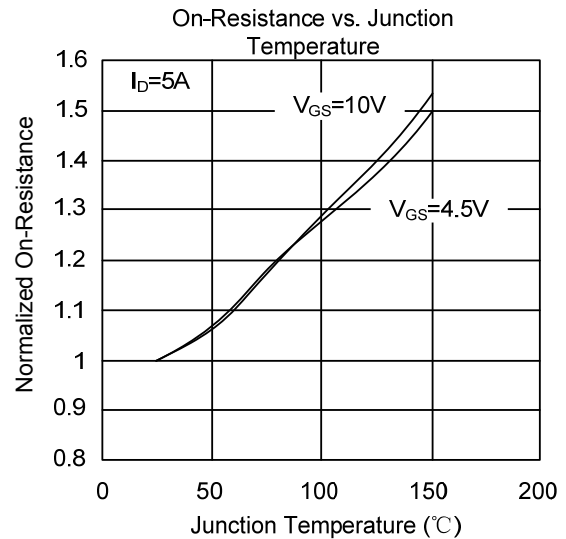
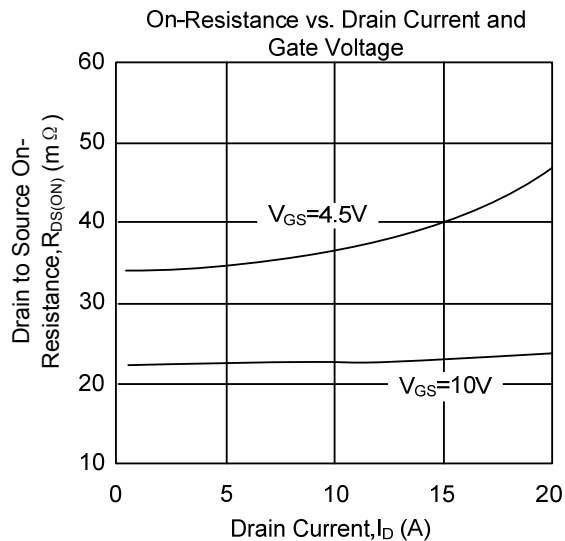
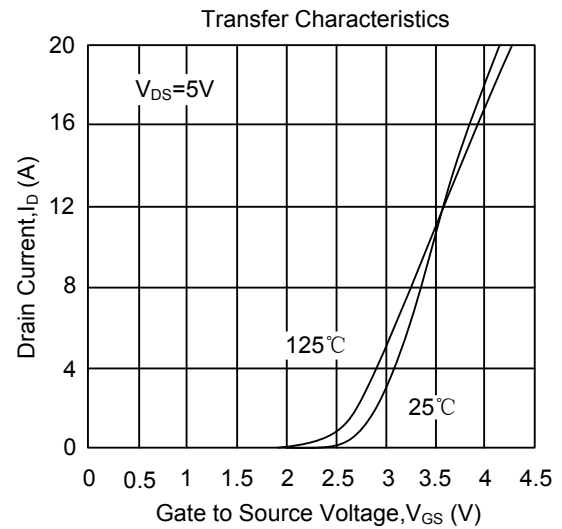
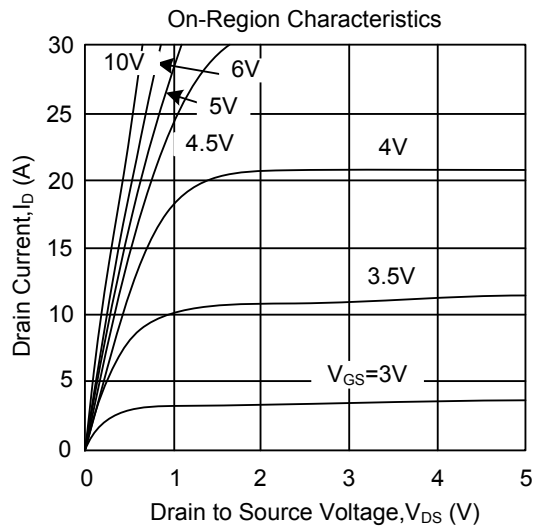
PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Junction to Ambient (Note 3)	θ_{JA}		85	125	$^\circ\text{C/W}$

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

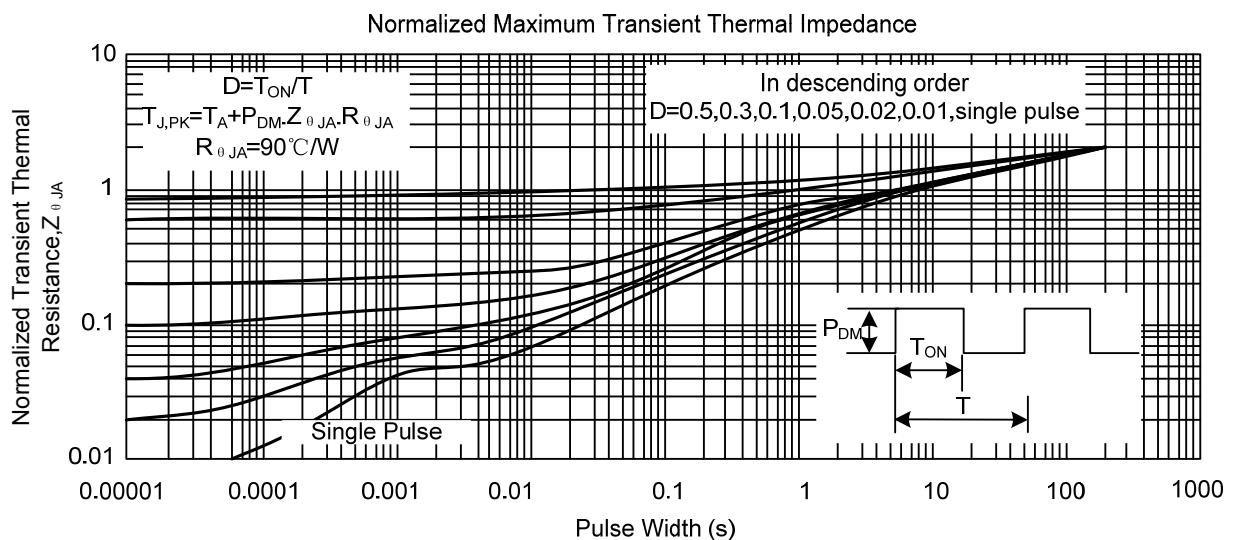
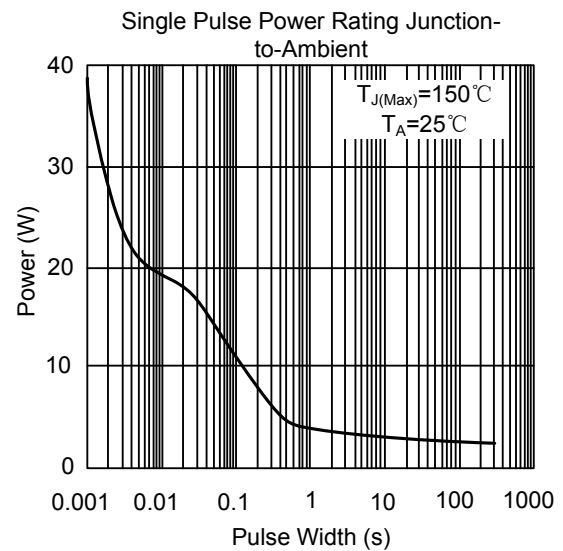
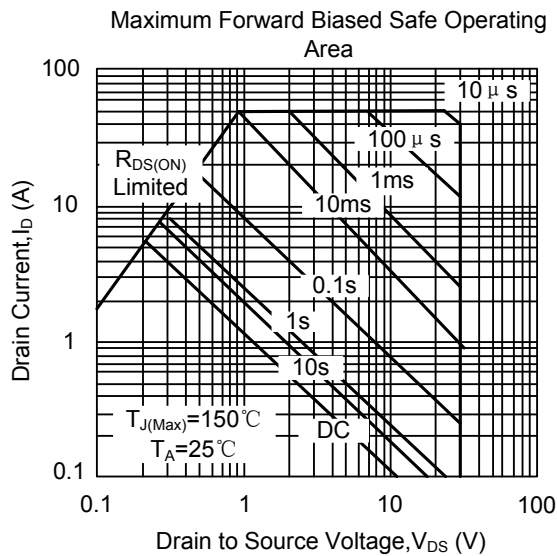
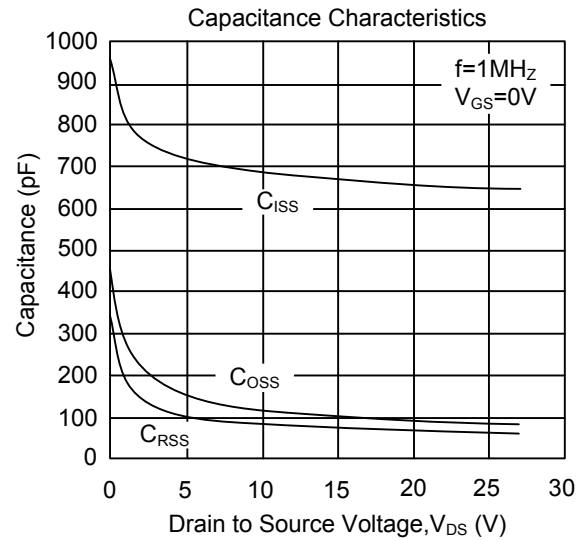
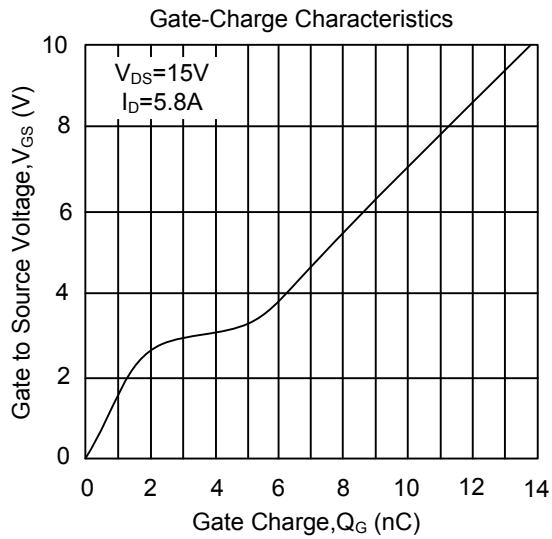
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250uA	30			V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =24V, V _{GS} =0V			1	uA
Gate-Source Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =250uA	1	1.9	3	V
On State Drain Current	I _{D(ON)}	V _{GS} =4.5V, V _{DS} =5V	20			A
Drain-Source On-State Resistance (Note 2)	R _{DS(ON)}	V _{GS} =10V, I _D =5.8A		22.5	28	mΩ
		V _{GS} =4.5V, I _D =5A		34.5	43	mΩ
DYNAMIC CHARACTERISTICS						
Input Capacitance	C _{ISS}	V _{GS} =0V,V _{DS} =15V, f=1.0MHz		680	820	pF
Output Capacitance	C _{OSS}			102		pF
Reverse Transfer Capacitance	C _{RSS}			77		pF
SWITCHING CHARACTERISTICS						
Turn-ON Delay Time (Note 2)	t _{D(ON)}	V _{DS} =15V, V _{GS} =10V, R _G =3Ω, R _D =2.7Ω		4.6	6.5	ns
Turn-ON Rise Time	t _R			3.8	5.7	ns
Turn-OFF Delay Time	t _{D(OFF)}			20.9	30	ns
Turn-OFF Fall Time	t _F			5	7.5	ns
Total Gate Charge (Note 2)	Q _G	V _{DS} =15V, V _{GS} =10V, I _D =5.8A		13.88	17	nC
Gate-Source Charge	Q _{GS}			1.8		nC
Gate-Drain Charge	Q _{GD}			3.12		nC
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Drain-Source Diode Forward Voltage(Note2)	V _{SD}	I _S =1A		0.76	1	V
Maximum Continuous Drain-Source Diode Forward Current	I _S				2.5	A
Reverse Recovery Time	t _{RR}	I _F =5.8A, dI/dt=100A/μs		16.1	21	ns
Reverse Recovery Charge	Q _{RR}			7.4	10	nC

Notes: 1. Pulse width limited by $T_{J(MAX)}$
2. Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
3. Surface mounted on 1 in² copper pad of FR4 board.

TYPICAL CHARACTERISTICS



TYPICAL CHARACTERISTICS(Cont.)



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