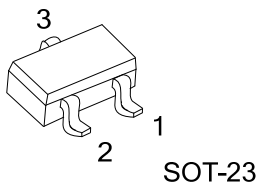
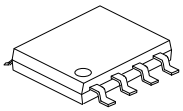
UT3404

Power MOSFET

N-CHANNEL ENHANCEMENT MODE MOSFET



SOT-23
(EIAJ SC-59)



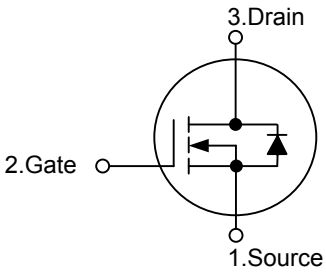
SOP-8

■ 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
		1	2	3	4	5	6	7	8	
UT3404G-AE3-R	SOT-23	S	G	D	-	-	-	-	-	Tape Reel
UT3404G-S08-R	SOP-8	S	S	S	G	D	D	D	D	Tape Reel

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

UT3404G-AE3-R
(1)Packing Type
(2)Package Type
(3)Green Package

(1) R: Tape Reel
(2) AE3: SOT-23, S08: SOP-8
(3) G: Halogen Free and Lead Free

■ MARKING

SOT-23	SOP-8
34DG	8 7 6 5 / UTC □□□□ / UT3404G / 1 2 3 4 — Date Code, Lot Code

■ ABSOLUTE MAXIMUM RATINGS (T_A=25°C, unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V_{DSS}	30	V
Gate-Source Voltage		V_{GSS}	±20	V
Continuous Drain Current (Note 3)		I_D	5.8	A
Pulsed Drain Current (Note 1, 2)		I_{DM}	20	A
Power Dissipation	SOT-23	P_D	1.4	W
	SOP-8		2	W
Junction Temperature		T_J	+150	°C
Strong 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	RATINGS	UNIT
Junction to Ambient (Note 3)	SOT-23	θ_{JA}	85	°C/W
	SOP-8		62.5	°C/W

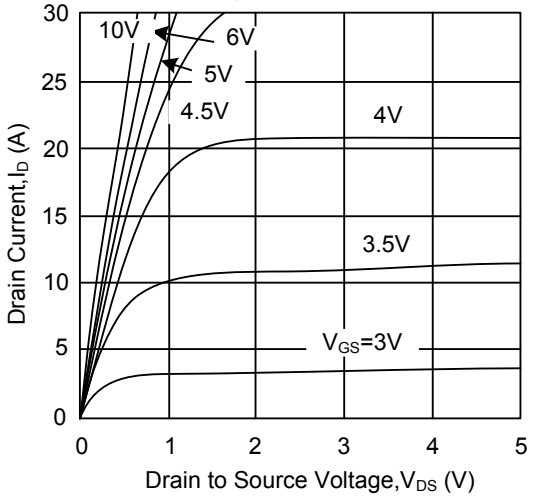
■ ELECTRICAL CHARACTERISTICS (T_J=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V, I_D=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

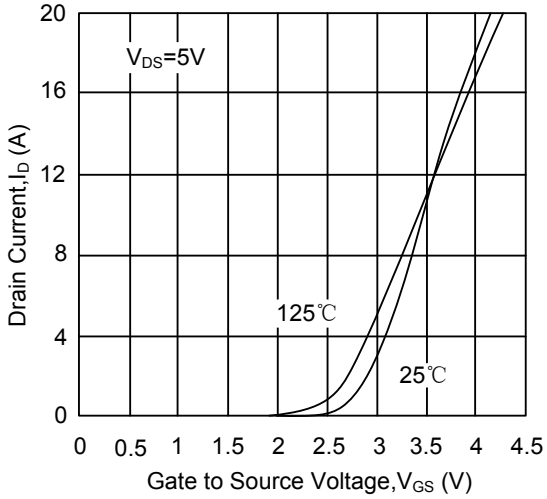
Notes: 1. Pulse width limited by $T_{J(MAX)}$
2. Pulse width ≤300us, duty cycle ≤2%.
3. Surface mounted on 1 in^2 copper pad of FR4 board.

■ TYPICAL CHARACTERISTICS

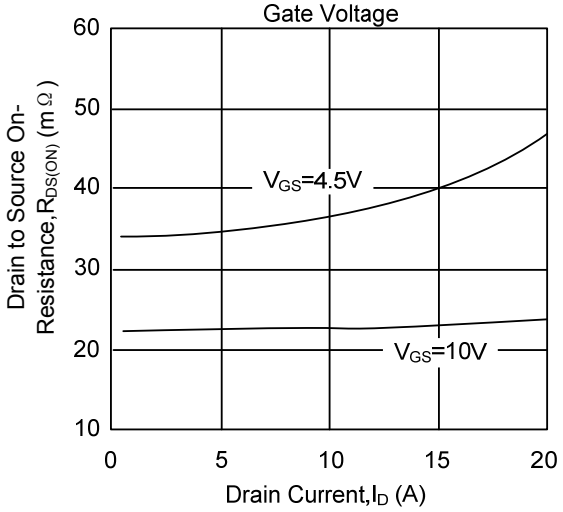
On-Region Characteristics



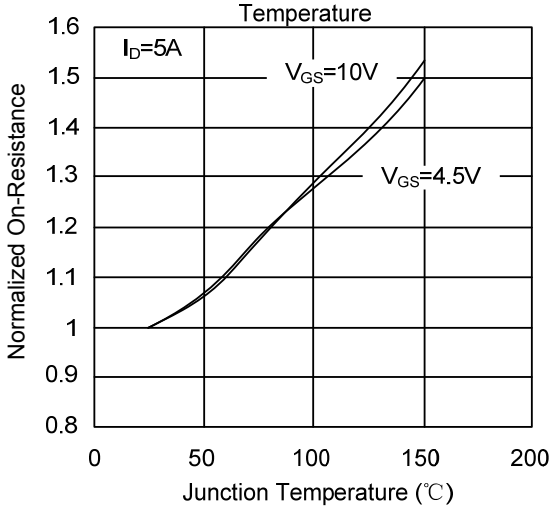
Transfer Characteristics



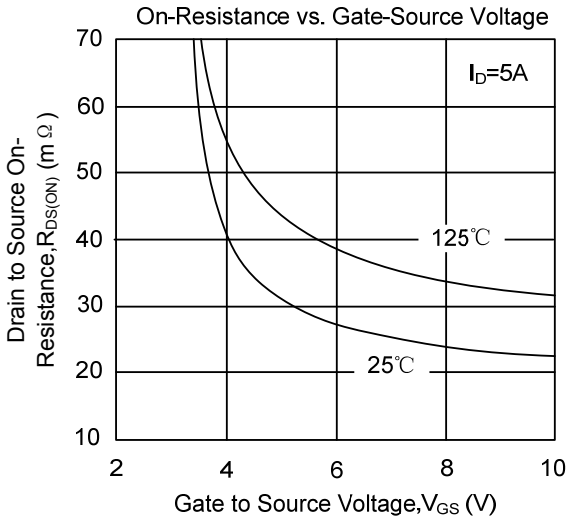
On-Resistance vs. Drain Current and Gate Voltage



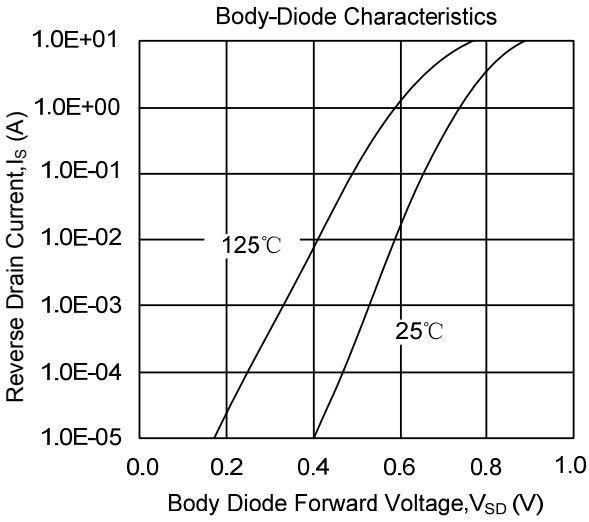
On-Resistance vs. Junction Temperature



On-Resistance vs. Gate-Source Voltage

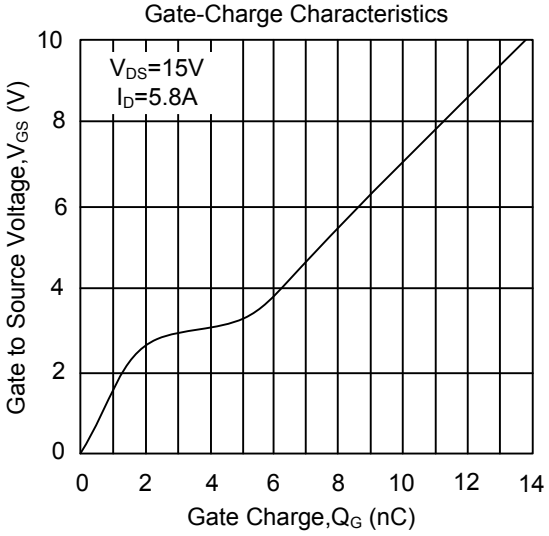


Body-Diode Characteristics

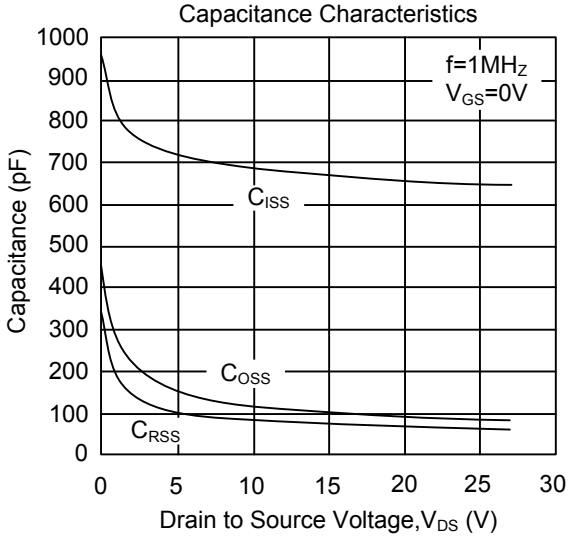


■ TYPICAL CHARACTERISTICS(Cont.)

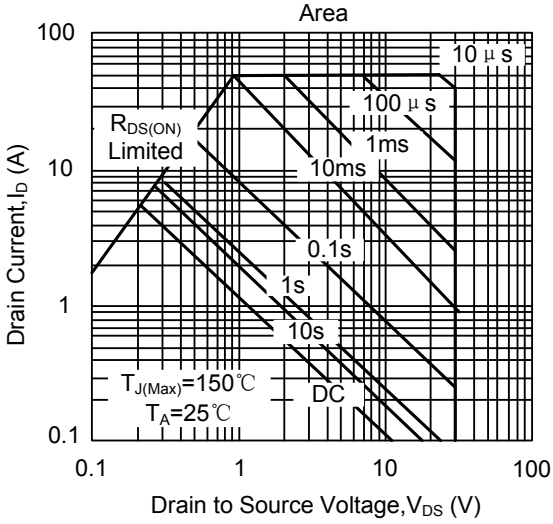
Gate-Charge Characteristics



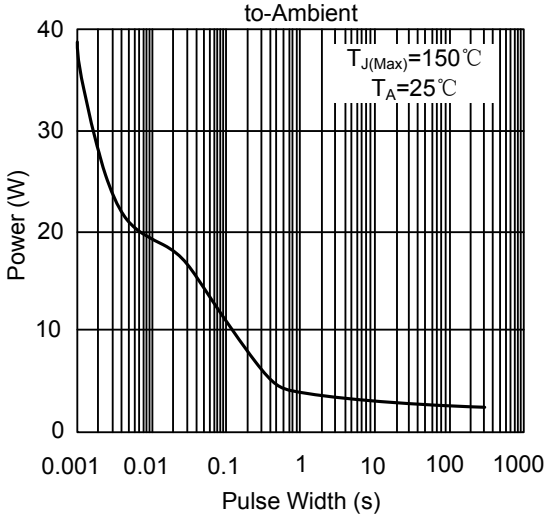
Capacitance Characteristics



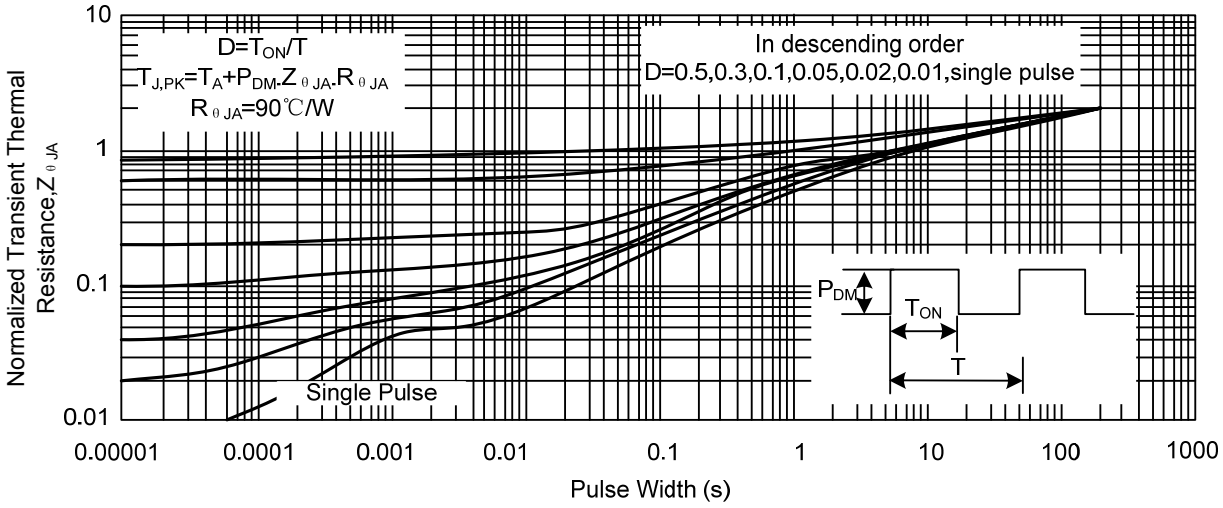
Maximum Forward Biased Safe Operating Area



Single Pulse Power Rating Junction-to-Ambient



Normalized Maximum Transient Thermal Impedance



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