



UT4404

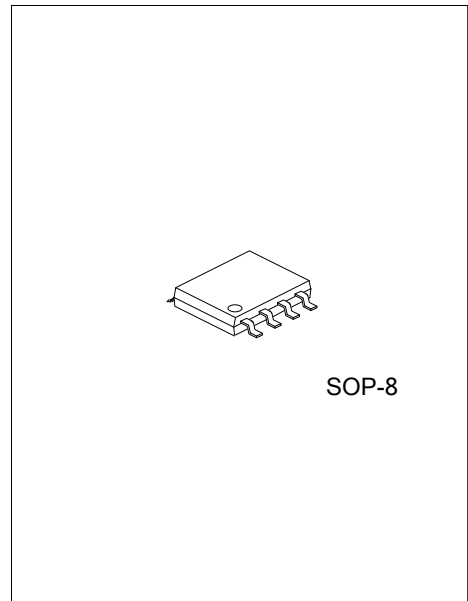
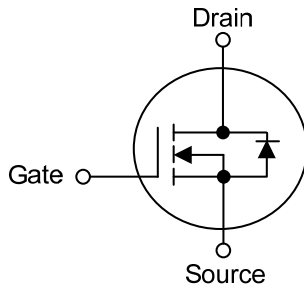
Power MOSFET

N-CHANNEL ENHANCEMENT MODE

DESCRIPTION

The UTC **UT4404** provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 2.5V by using advanced trench technology. The UTC **UT4404** is suitable for use in PWM applications and as a load switch. Separating the source leads is to allow a Kelvin connection to the source to bypass the source inductance.

SYMBOL



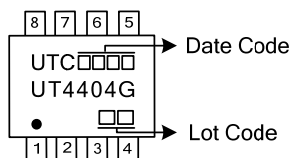
ORDERING INFORMATION

Ordering Number	Package	Pin Assignment								Packing
		1	2	3	4	5	6	7	8	
UT4404G-S08-R	SOP-8	S	S	S	G	D	D	D	D	Tape Reel

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

<p>UT4404G-S08-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) S08: SOP-8</p> <p>(3) G: Halogen Free and Lead Free</p>
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MARKING



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

PARAMETER	SYMBOL	RATINGS	UNIT	
Drain-Source Voltage	V _{DS}	30	V	
Gate-Source Voltage	V _{GS}	±12	V	
Continuous Drain Current (Note 2)	I _D	T _A =25°C	8.5	A
		T _A =70°C	7.1	A
Pulsed Drain Current (Note 2)	I _{DM}	60	A	
Power Dissipation	P _D	T _A =25°C	2.8	W
		T _A =70°C	1.8	W
Junction Temperature	T _J	+150	°C	
Storage Temperature	T _{STG}	-55 ~ +150	°C	

Notes: 1. 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.
 2. Repetitive Rating : Pulse width limited by T_J

■ THERMAL DATA

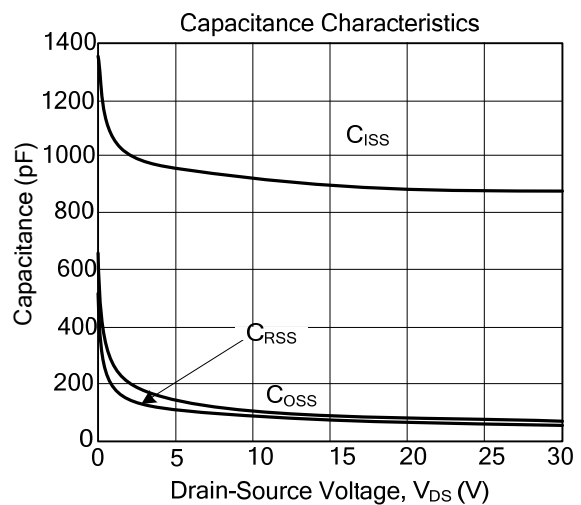
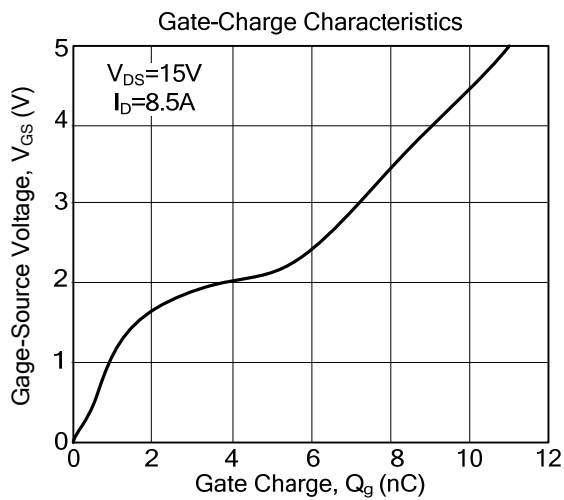
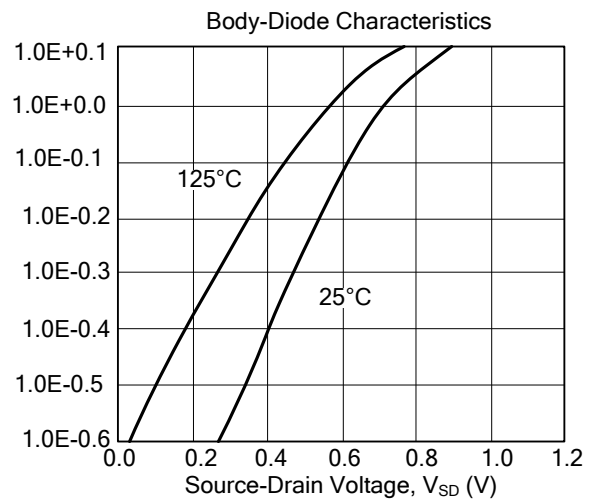
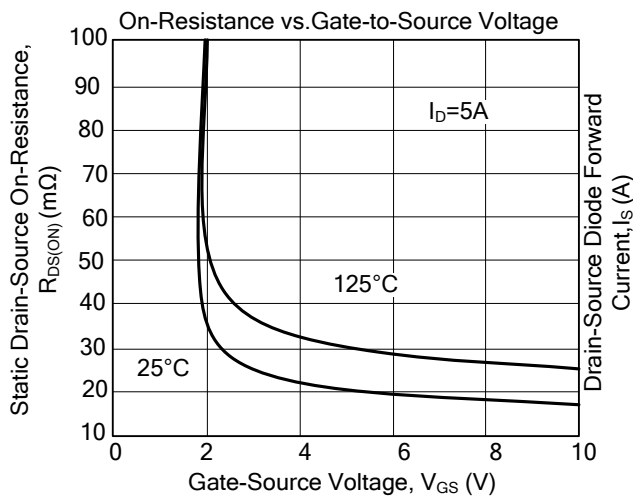
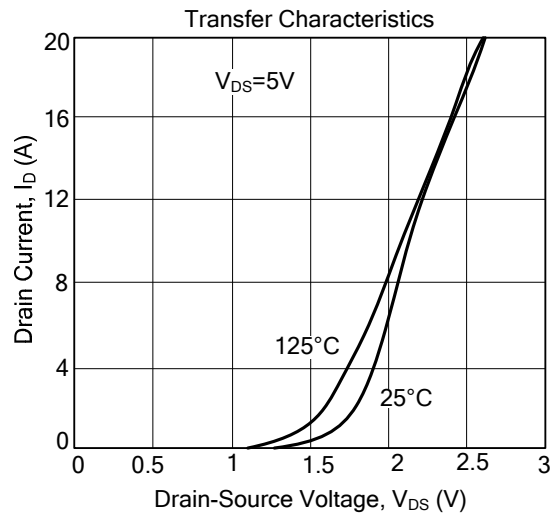
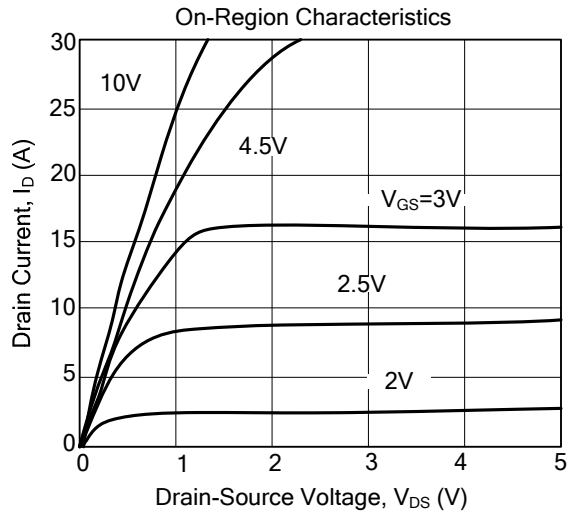
PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Junction to Ambient	θ _{JA}		70	100	°C/W

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

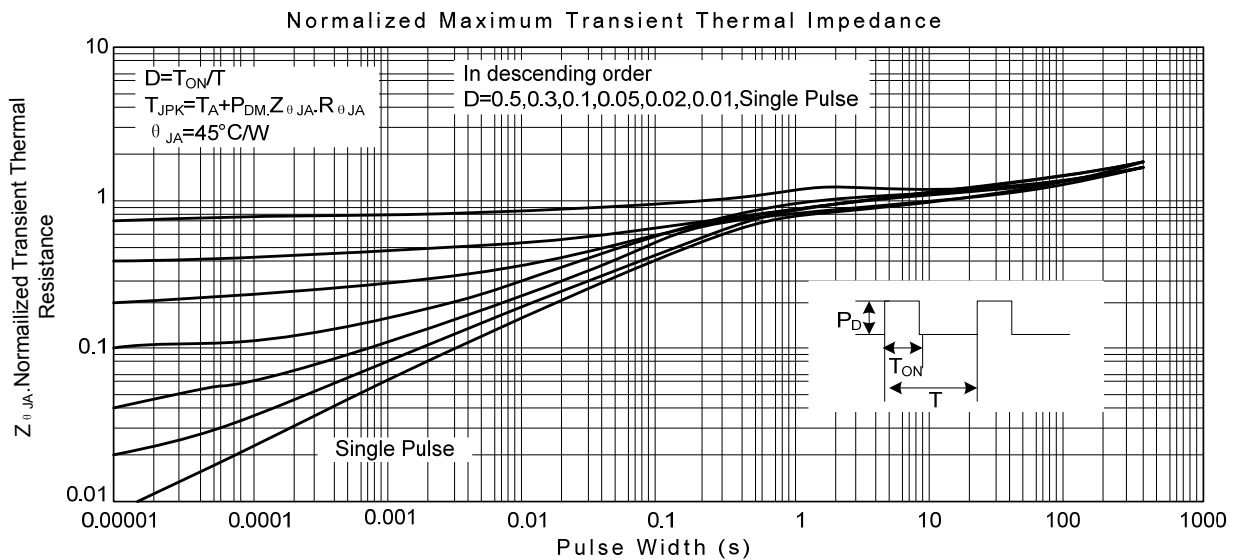
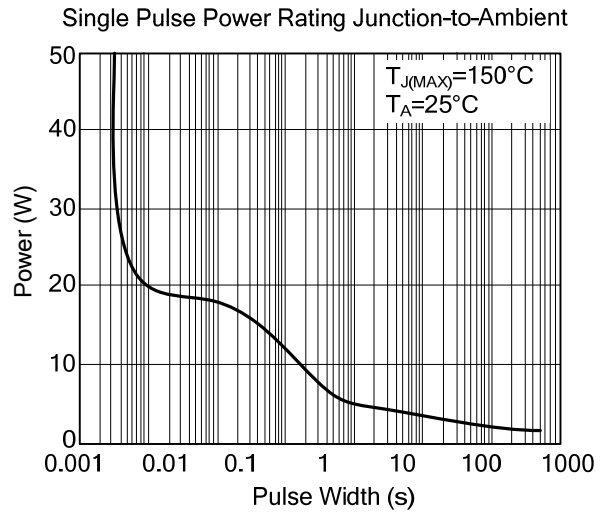
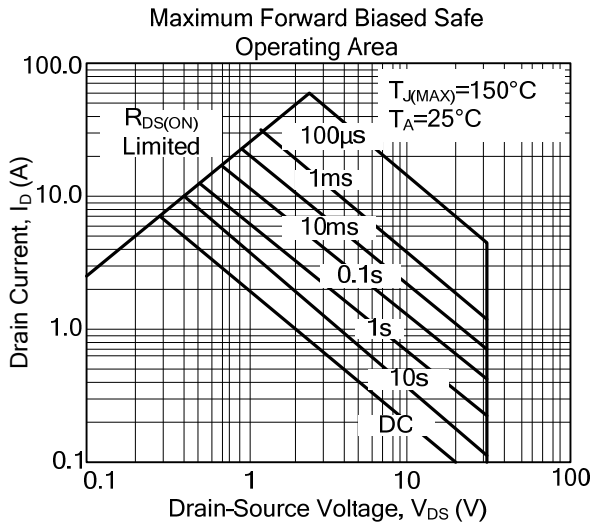
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
STATIC PARAMETERS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0 V, I _D =250μA	30			V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =24 V, V _{GS} =0V		0.002	1	μA
Gate-Source Leakage Current	I _{GSS}	V _{DS} =0 V, V _{GS} = ±12V			±100	nA
ON CHARACTERISTICS						
Gate-Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =250μA	0.7	1	1.4	V
On state drain current	I _{D(ON)}	V _{GS} =4.5V, V _{DS} =5V	40			A
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =10 V, I _D =8.5A		18	24	mΩ
		V _{GS} =4.5 V, I _D =8.5A		22	30	mΩ
		V _{GS} = 2.5V, I _D =5A		32	48	mΩ
DYNAMIC PARAMETERS						
Input Capacitance	C _{ISS}	V _{DS} =15 V, V _{GS} =0V, f=1MHz		857		pF
Output Capacitance	C _{OSS}			97		pF
Reverse Transfer Capacitance	C _{RSS}			71		pF
Gate resistance	R _g	V _{GS} =0V, V _{DS} =0V, f=1MHz		1.4		Ω
SWITCHING PARAMETERS						
Turn-ON Delay Time	t _{D(ON)}	V _{GS} =10V, V _{DS} =15V R _L =1.8Ω, R _{GEN} =6Ω		3.2		ns
Turn-ON Rise Time	t _R			3.5		ns
Turn-OFF Delay Time	t _{D(OFF)}			21.5		ns
Turn-OFF Fall-Time	t _F			2.7		ns
Total Gate Charge	Q _G	V _{DS} =15V, V _{GS} =4.5V, I _D =8.5A		10	12	nC
Gate-Source Charge	Q _{GS}			1.8		nC
Gate-Drain Charge	Q _{GD}			3.75		nC
DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS						
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =1A		0.71	1	V
Maximum Body-Diode Continuous Current	I _S				4.5	A
Body Diode Reverse Recovery Time	t _{RR}	I _F =5A, dI/dt=100A/μs		16.8	20	ns
Body Diode Reverse Recovery Charge	Q _{RR}	I _F =5A, dI/dt=100A/μs		8	12	nC

Notes: 1. Pulse Test: Pulse width ≤ 300μs, Duty cycle 0.5% max.
 2. Surface mounted on 1 in² copper pad of FR4 board

TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS(Cont.)



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