



## UT2352

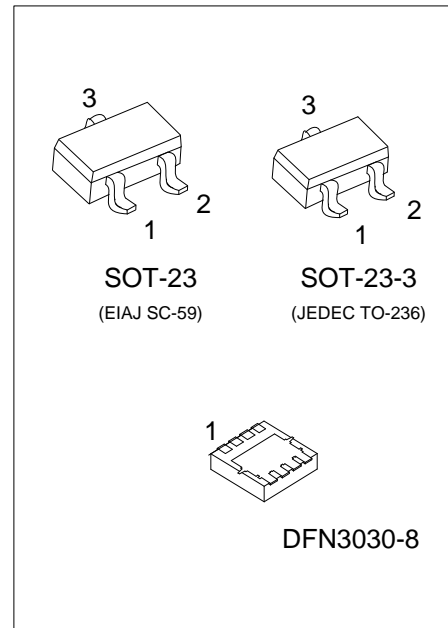
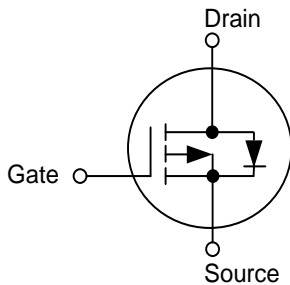
Power MOSFET

### -30V, -1.3A P-CHANNEL ENHANCEMENT MODE

#### DESCRIPTION

As P-Channel Logic Level MOSFET, **UT2352** has been optimized for battery power management applications. And it's produced using UTC's advanced Power Trench process.

#### SYMBOL



#### ORDERING INFORMATION

Ordering Number		Package	Pin Assignment								Packaging
Lead Free	Halogen Free		1	2	3	4	5	6	7	8	
UT2352L-AE2-R	UT2352G-AE2-R	SOT-23-3	G	S	D	-	-	-	-	-	Tape Reel
UT2352L-AE3-R	UT2352G-AE3-R	SOT-23	G	S	D	-	-	-	-	-	Tape Reel
UT2352G-K08-3030-R	UT2352G-K08-3030-R	DFN3030-8	S	S	S	G	D	D	D	D	Tape Reel

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

<p>UT2352G-AE2-R</p> <p>(1) Packing Type (2) Package Type (3) Green Package</p>	<p>(1) R: Tape Reel (2) AE2: SOT-23-3, AE3: SOT-23, K08-3030: DFN3030-8 (3) G: Halogen Free and Lead Free, L: Lead Free</p>
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#### MARKING

SOT-23-3 / SOT-23	DFN3030-8
<p>L: Lead Free G: Halogen Free</p>	<p>UT 2352 • □□□□ → Date Code</p>

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

PARAMETER		SYMBOL	RATING	UNIT
Drain-Source Voltage		$V_{DSS}$	-30	V
Gate-Source Voltage		$V_{GSS}$	$\pm 25$	V
Continuous Drain Current		$I_D$	-1.3	A
Pulsed Drain Current		$I_{DM}$	-10	A
Power Dissipation (Note 3)	SOT-23-3	$P_D$	0.4	W
	SOT-23		0.46	W
	DFN3030-8		2.4	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	RATING	UNIT
Junction-to-Ambient (Note 3)	SOT-23-3	$\theta_{JA}$	310	$^\circ\text{C/W}$
	SOT-23		250	$^\circ\text{C/W}$
	DFN3030-8		52	$^\circ\text{C/W}$
Junction-to-Case	SOT-23-3	$\theta_{JC}$	90	$^\circ\text{C/W}$
	SOT-23		75	$^\circ\text{C/W}$
	DFN3030-8		3	$^\circ\text{C/W}$

### ■ ELECTRICAL CHARACTERISTICS (T<sub>A</sub> =25°C, unless otherwise specified)

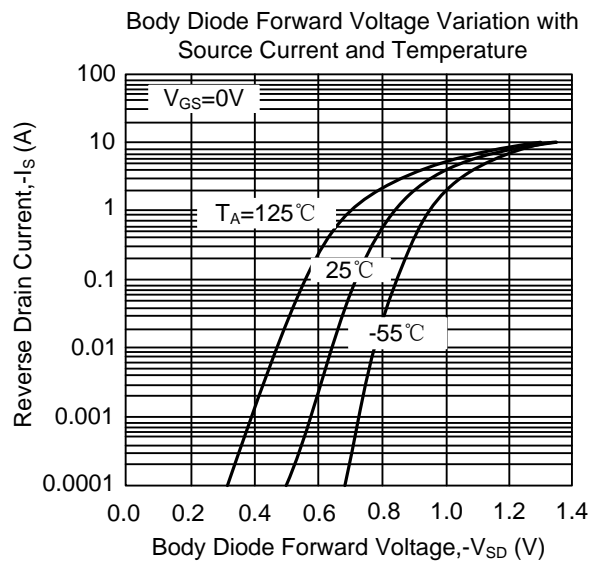
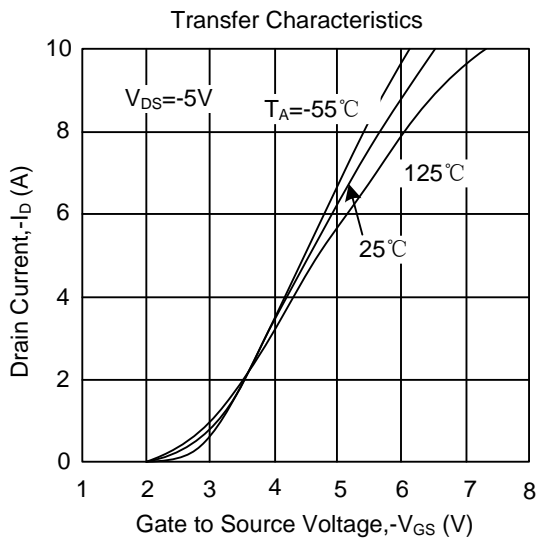
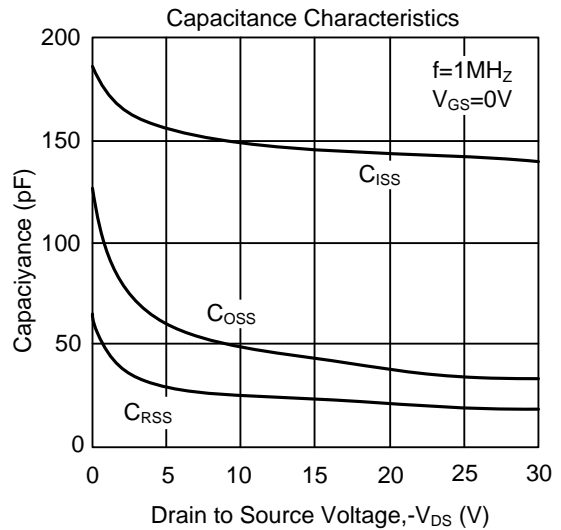
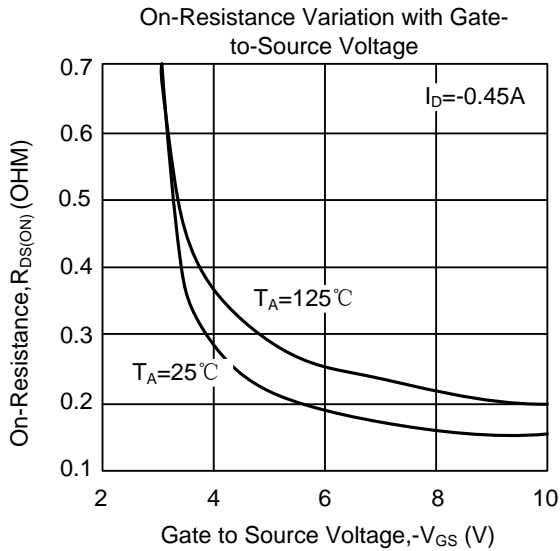
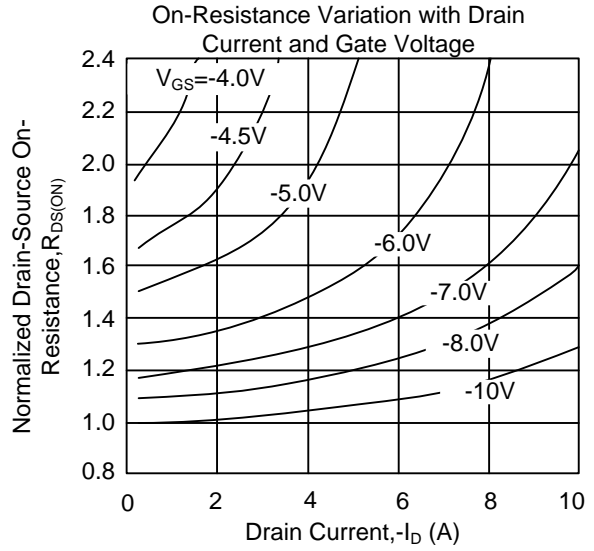
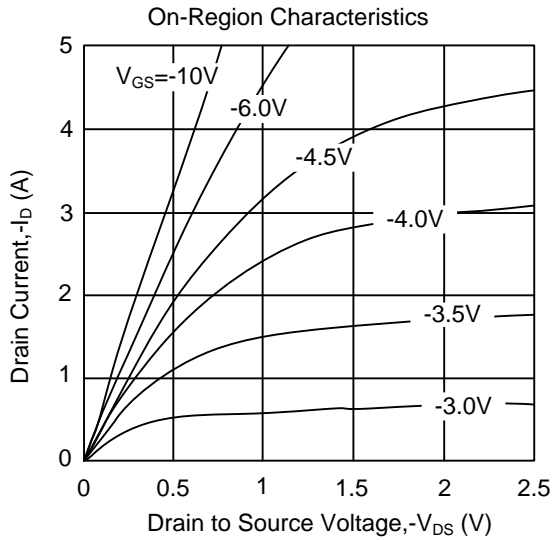
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
<b>OFF CHARACTERISTICS</b>						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =-250uA	-30			V
Drain-Source Leakage Current	I <sub>DSS</sub>	V <sub>DS</sub> =-24V, V <sub>GS</sub> =0V			-1	uA
Gate-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±25V, V <sub>DS</sub> =0V			±100	nA
Breakdown Voltage Temperature Coefficient	ΔBV <sub>DSS</sub> /ΔT <sub>J</sub>	Reference to 25 °C, I <sub>D</sub> =-250uA		-17		mV/°C
<b>ON CHARACTERISTICS</b>						
Gate Threshold Voltage	V <sub>GS(TH)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =-250uA	-0.8	-2.0	-2.5	V
Drain-Source On-State Resistance (Note 2)	R <sub>DS(ON)</sub>	V <sub>GS</sub> =-10V, I <sub>D</sub> =-1.3A		150	180	mΩ
		V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-1.1A		250	300	mΩ
<b>DYNAMIC CHARACTERISTICS</b>						
Input Capacitance	C <sub>ISS</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =-15V, f=1MHz		150		pF
Output Capacitance	C <sub>OSS</sub>			40		pF
Reverse Transfer Capacitance	C <sub>RSS</sub>			20		pF
<b>SWITCHING CHARACTERISTICS</b>						
Total Gate Charge	Q <sub>G</sub>	V <sub>DS</sub> =-10V, V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-0.9A		1.4	1.9	nC
Gate-Source Charge	Q <sub>GS</sub>			0.5		nC
Gate-Drain Charge	Q <sub>GD</sub>			0.5		nC
Turn-ON Delay Time (Note 2)	t <sub>D(ON)</sub>	V <sub>DD</sub> =-10V, V <sub>GS</sub> =-10V, I <sub>D</sub> =-1A, R <sub>G</sub> =6Ω		4	8	ns
Turn-ON Rise Time	t <sub>R</sub>			15	28	ns
Turn-OFF Delay Time	t <sub>D(OFF)</sub>			10	18	ns
Turn-OFF Fall Time	t <sub>F</sub>			1	2	ns
<b>SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS</b>						
Drain-Source Diode Forward Voltage(Note2)	V <sub>SD</sub>	V <sub>GS</sub> =0V, I <sub>S</sub> =-0.42 A		-0.8	-1.2	V
Maximum Continuous Drain Source Diode Forward Current	I <sub>S</sub>				-0.42	A
Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> = -3.9A, dI <sub>F</sub> /dt = 100A/μs		17		ns
Reverse Recovery Charge	Q <sub>rr</sub>				7	

Notes: 1. Pulse width limited by T<sub>J(MAX)</sub>

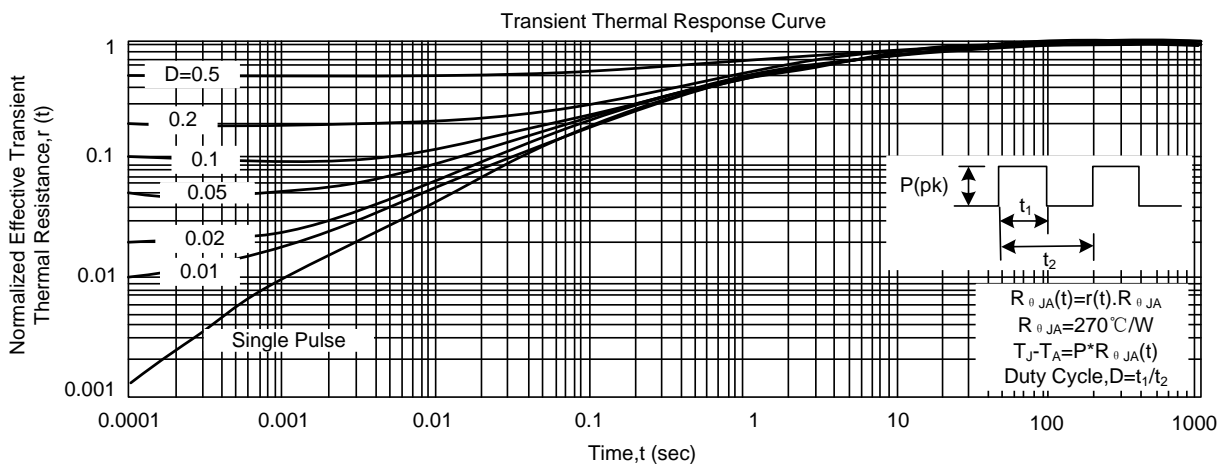
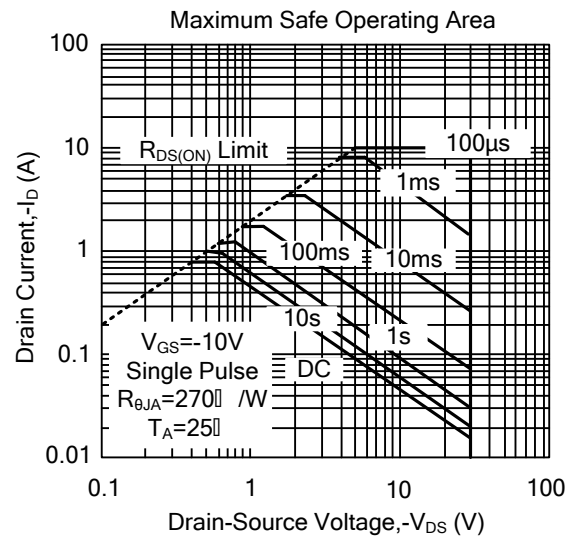
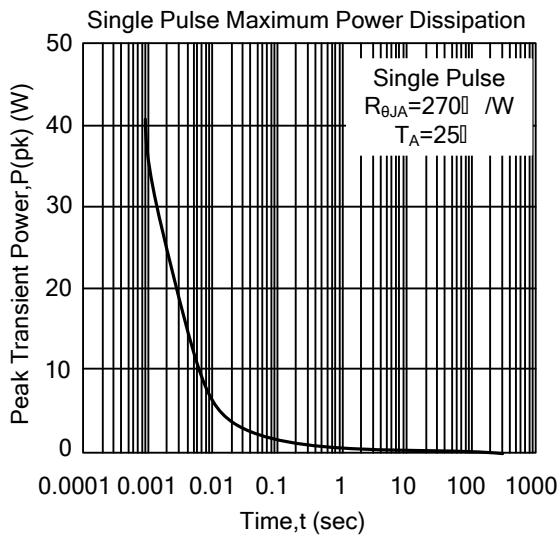
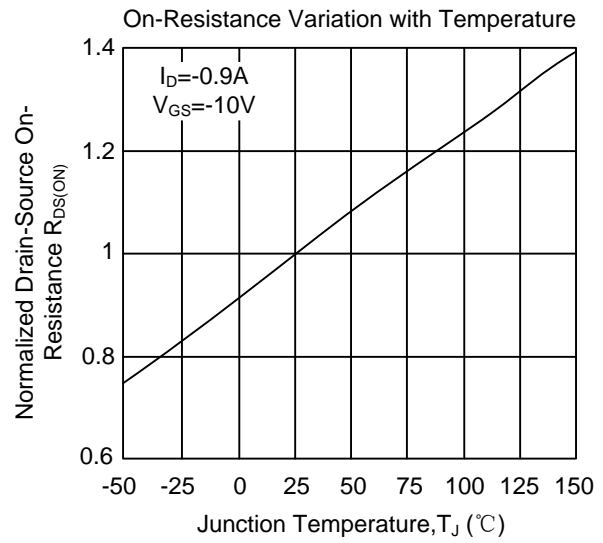
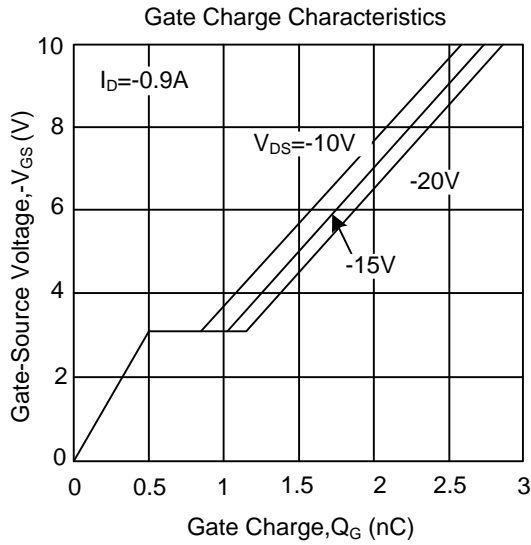
2. Pulse width ≤300us, duty cycle ≤2%.

3. Surface mounted on 0.001 in<sup>2</sup> pad of 2oz. copper; 270°C/W when mounted on min.

## ■ TYPICAL CHARACTERISTICS



## ■ TYPICAL CHARACTERISTICS (Cont.)



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