



UT2327

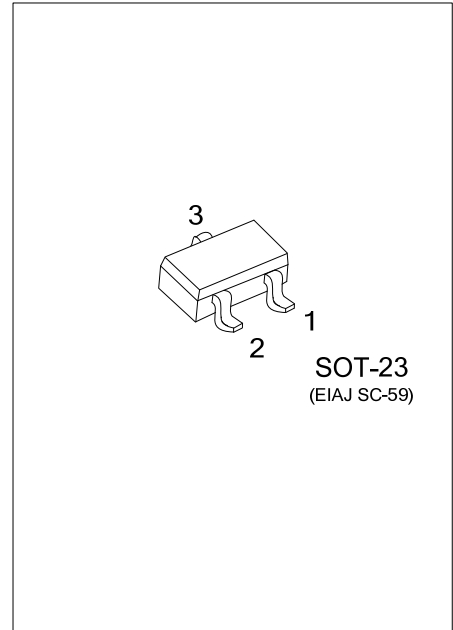
Power MOSFET

P-CHANNEL ENHANCEMENT MODE

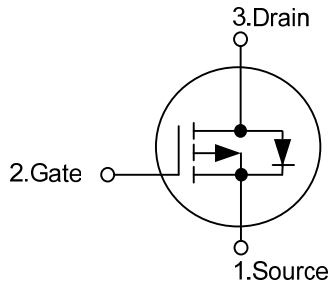
DESCRIPTION

The UTC **UT2327** is P-channel enhancement mode Power MOSFET, designed in serried ranks. with fast switching speed, low on-resistance, favorable stabilization.

Used in commercial and industrial surface mount applications and suited for low voltage applications such as DC/DC converters.



SYMBOL



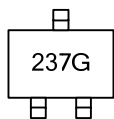
ORDERING INFORMATION

Ordering Number	Package	Pin Assignment			Packing
		1	2	3	
UT2327G-AE3-R	SOT-23	S	G	D	Tape Reel

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

<p>UT2327G-AE3-R</p>	<p>(1) R: Tape Reel</p> <p>(2) AE3: SOT-23</p> <p>(3) G: Halogen Free and Lead Free</p>
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MARKING



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

PARAMETER	SYMBOL	RATING	UNIT	
Drain-Source Voltage	V_{DS}	- 20	V	
Gate-Source Voltage	V_{GS}	± 12	V	
Continuous Drain Current (Note 3)	I_D	$T_A=25^{\circ}\text{C}$	-2.6	A
		$T_A=70^{\circ}\text{C}$	-2.1	A
Pulsed Drain Current (Note 1, 2)	I_{DM}	-10	A	
Total Power Dissipation ($T_A=25^{\circ}\text{C}$)	P_D	1.38	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

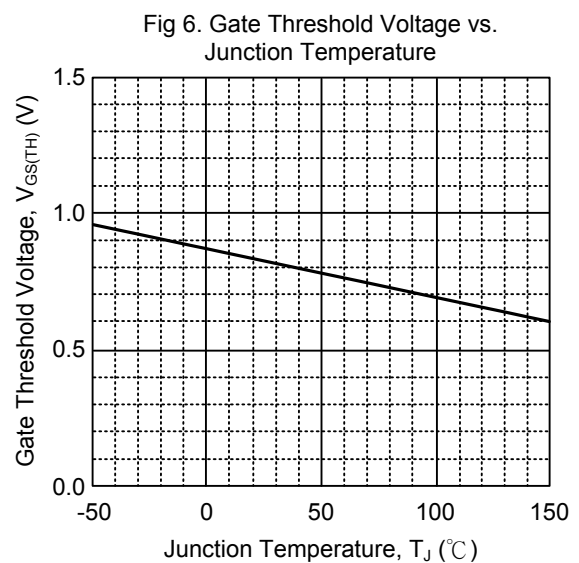
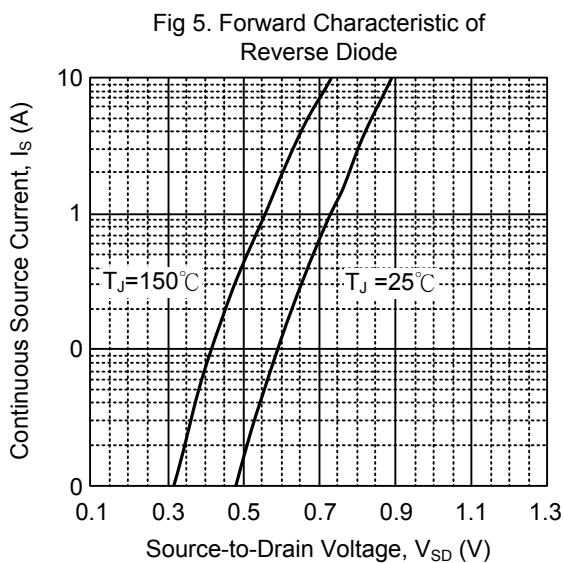
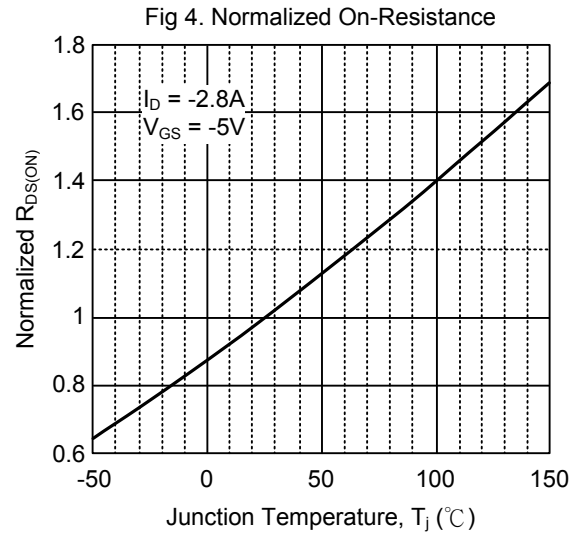
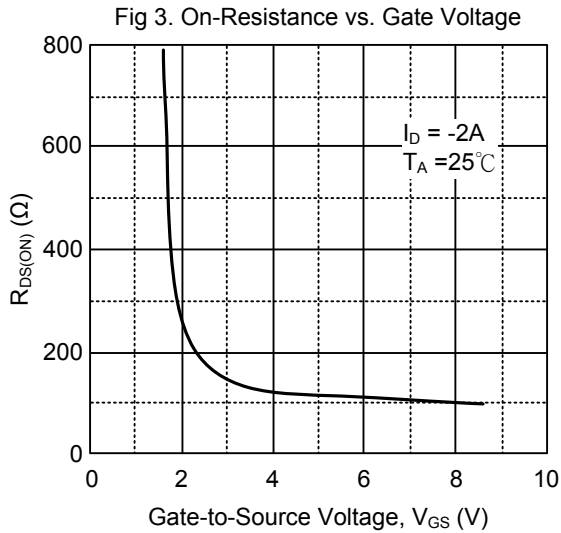
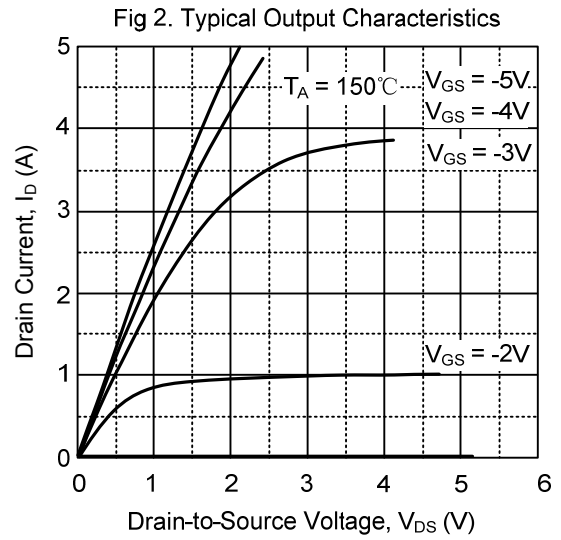
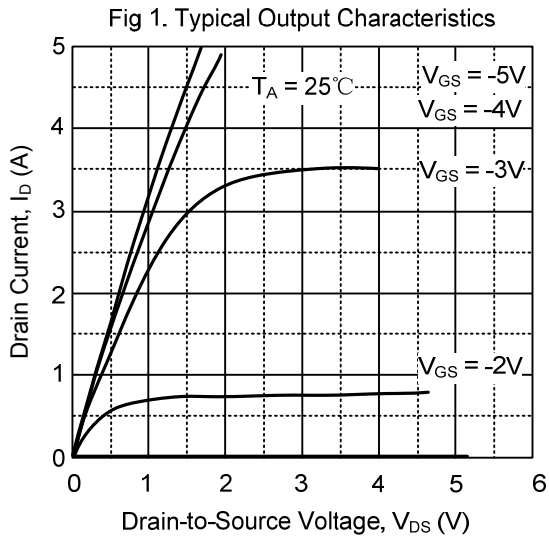
PARAMETER	SYMBOL	RATING	UNIT
Junction to Ambient (Note 3)	θ_{JA}	90	$^{\circ}\text{C}/\text{W}$

■ 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}	$V_{GS}=0\text{V}, I_D=-250\mu\text{A}$	-20			V	
Drain-Source Leakage Current	I_{DSS}	$T_J=25^{\circ}\text{C}$ $V_{DS}=-20\text{V}, V_{GS}=0\text{V}$			-1	μA	
		$T_J=70^{\circ}\text{C}$ $V_{DS}=-16\text{V}, V_{GS}=0\text{V}$			-10	μA	
Gate-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 12\text{V}$			± 100	nA	
Breakdown Voltage Temperature Coefficient	$\Delta BV_{DSS}/\Delta T_J$	Reference to 25°C , $I_D=-1\text{mA}$		-0.1		$\text{V}/^{\circ}\text{C}$	
ON CHARACTERISTICS							
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS}=V_{GS}, I_D=-250\mu\text{A}$	-0.5			V	
Drain-Source On-State Resistance (Note 2)	$R_{DS(ON)}$	$V_{GS}=-5\text{V}, I_D=-2.8\text{A}$			130	$\text{m}\Omega$	
		$V_{GS}=-2.8\text{V}, I_D=-2.0\text{A}$			190	$\text{m}\Omega$	
Forward Transconductance	g_{FS}	$V_{DS}=-5\text{V}, I_D=-2.8\text{A}$		4.4		S	
DYNAMIC CHARACTERISTICS							
Input Capacitance	C_{ISS}	$V_{GS}=0\text{V}, V_{DS}=-6\text{V}, f=1.0\text{MHz}$		295		pF	
Output Capacitance	C_{OSS}				170		pF
Reverse Transfer Capacitance	C_{RSS}				65		pF
SWITCHING CHARACTERISTICS							
Turn-ON Delay Time (Note 2)	$t_{D(ON)}$	$V_{DS}=-15\text{V}, V_{GS}=-10\text{V}, I_D=-1\text{A}, R_G=6\Omega, R_D=15\Omega$		5.2		ns	
Turn-ON Rise Time	t_R				9.7		ns
Turn-OFF Delay Time	$t_{D(OFF)}$				19		ns
Turn-OFF Fall Time	t_F				29		ns
Total Gate Charge (Note 2)	Q_G				5.2	10	nC
Gate-Source Charge	Q_{GS}	$V_{DS}=-6\text{V}, V_{GS}=-5\text{V}, I_D=-2.8\text{A}$		1.36		nC	
Gate-Drain Charge	Q_{GD}			0.6		nC	
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS							
Drain-Source Diode Forward Voltage(Note2)	V_{SD}	$T_J=25^{\circ}\text{C}, I_S=-1.6\text{A}, V_{GS}=0\text{V}$			-1.2	V	
Maximum Continuous Drain-Source Diode Forward Current	I_S	$V_D=V_G=0\text{V}, V_S=-1.2\text{V}$			-1	A	
Maximum Pulsed Drain-Source Diode Forward Current (Note 1)	I_{SM}				-10	A	

- Notes: 1. Pulse width limited by $T_{J(MAX)}$
 2. Pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.
 3. Surface mounted on 1 in² copper pad of FR4 board; $270^{\circ}\text{C}/\text{W}$ when mounted on min.

■ TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS(Cont.)

Fig 7. Gate Charge Characteristics

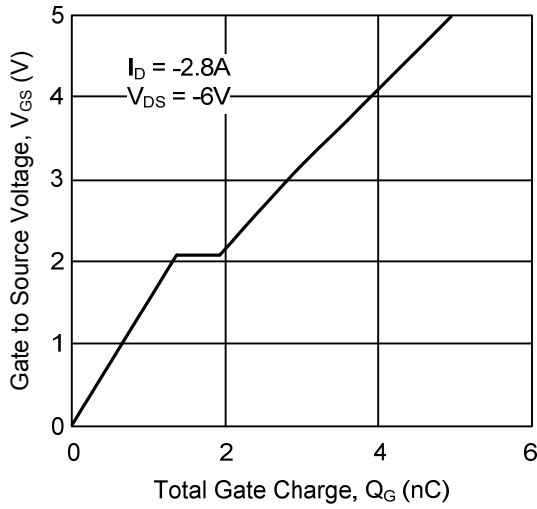


Fig 8. Typical Capacitance Characteristics

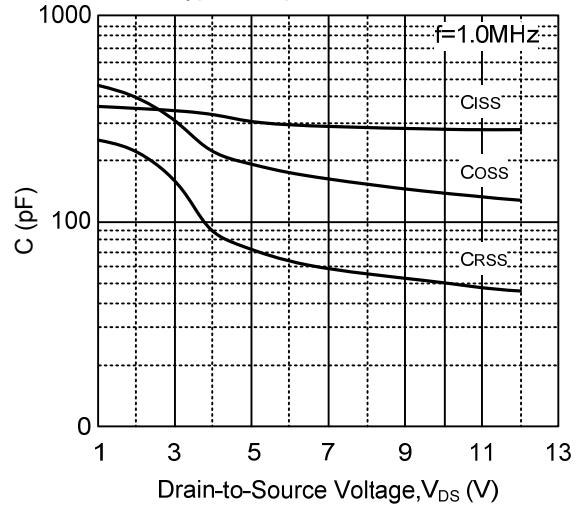


Fig 9. Maximum Safe Operating Area

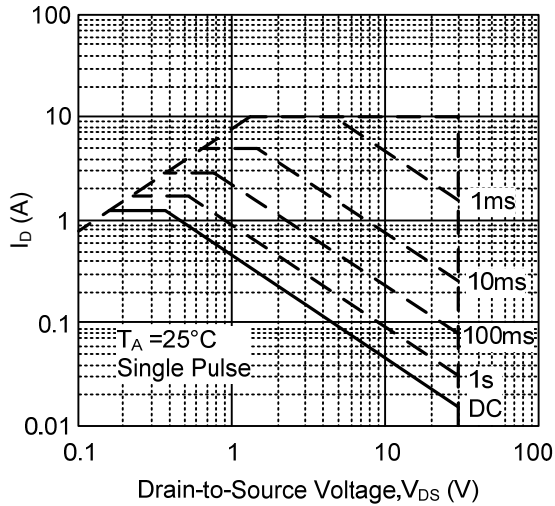


Fig 10. Effective Transient Thermal Impedance

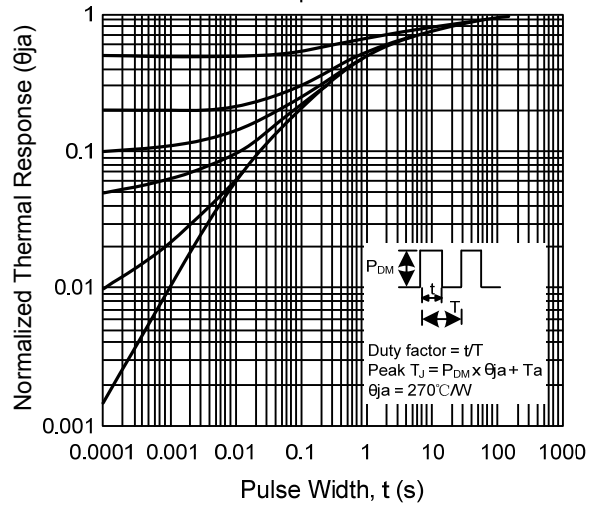


Fig 11. Switching Time Waveform

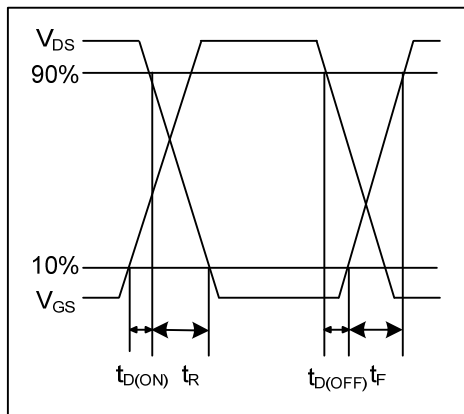
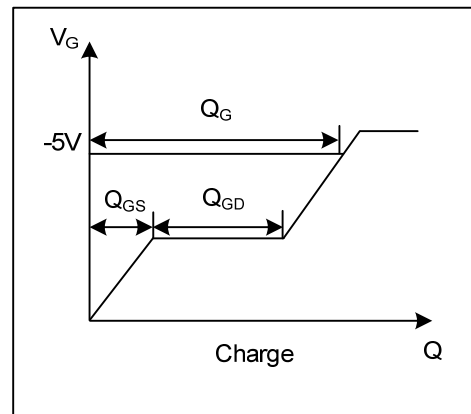


Fig 12. Gate Charge Waveform



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