



UT2327

Power MOSFET

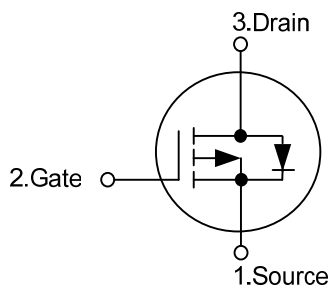
P-CHANNEL ENHANCEMENT MODE

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



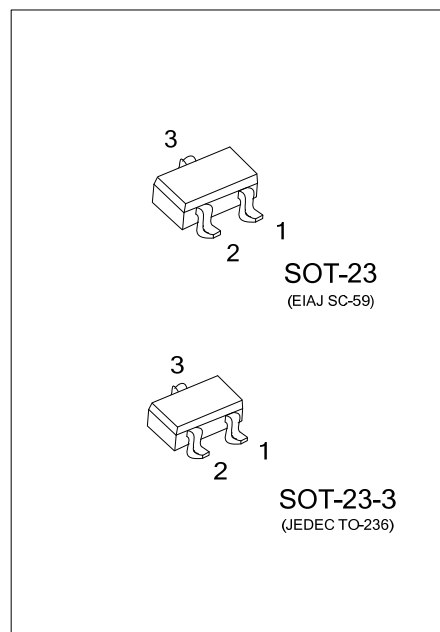
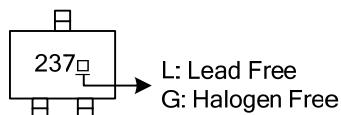
ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UT2327L-AE2-R	UT2327G-AE2-R	SOT-23-3	S	G	D	Tape Reel
UT2327L-AE3-R	UT2327G-AE3-R	SOT-23	S	G	D	Tape Reel

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

UT2327G-AE2-R (1) Packing Type (2) Package Type (3) Green Package	(1) R: Tape Reel (2) AE2: SOT-23-3, AE3: SOT-23 (3) G: Halogen Free and Lead Free, L: Lead Free
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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)	T _A =25°C	I _D	-2.6	A
	T _A =70°C		-2.1	A
Pulsed Drain Current (Note 1, 2)		I _{DM}	-10	A
Total Power Dissipation (T _A =25°C)		P _D	1.38	W
Junction Temperature		T _J	+150	°C
Storage 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	RATING	UNIT
Junction to Ambient (Note 3)	θ_{JA}	90	$^\circ\text{C/W}$

■ 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	-20			V
Drain-Source Leakage Current	T _J =25°C	I _{DSS}	V _{DS} =-20V, V _{GS} =0V			-1	uA
	T _J =70°C		V _{DS} =-16V, V _{GS} =0V			-10	uA
Gate-Source Leakage Current		I _{GSS}	V _{GS} =±12V			±100	nA
Breakdown Voltage Temperature Coefficient		ΔBV _{DSS} /ΔT _J	Reference to 25°C, I _D =-1mA		-0.1		V/°C
ON CHARACTERISTICS							
Gate Threshold Voltage		V _{GS(TH)}	V _{DS} =V _{GS} , I _D =-250uA	-0.5			V
Drain-Source On-State Resistance (Note 2)		R _{DS(ON)}	V _{GS} =-5V, I _D =-2.8A			130	mΩ
			V _{GS} =-2.8V, I _D =-2.0A			190	mΩ
Forward Transconductance		g _{FS}	V _{DS} =-5V, I _D =-2.8A		4.4		S
DYNAMIC CHARACTERISTICS							
Input Capacitance		C _{ISS}	V _{GS} =0V, V _{DS} =-6V, f=1.0MHz		295		pF
Output Capacitance		C _{OSS}			170		pF
Reverse Transfer Capacitance		C _{RSS}			65		pF
SWITCHING CHARACTERISTICS							
Total Gate Charge (Note 2)		Q _G	V _{DS} =-6V, V _{GS} =-5V, I _D =-2.8A		5.2	10	nC
Gate-Source Charge		Q _{GS}			1.36		nC
Gate-Drain Charge		Q _{GD}			0.6		nC
Turn-ON Delay Time (Note 2)		t _{D(ON)}	V _{DS} =-15V, V _{GS} =-10V, I _D =-1A, R _G =6Ω, R _D =15Ω		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
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS							
Maximum Continuous Drain-Source Diode Forward Current		I _S	V _D =V _G =0V, V _S =-1.2V			-1	A
Maximum Pulsed Drain-Source Diode Forward Current (Note 1)		I _{SM}				-10	A
Drain-Source Diode Forward Voltage(Note2)		V _{SD}	T _J =25°C, I _S =-1.6A, V _{GS} =0V			-1.2	V

Notes: 1. Repetitive Rating: Pulse width limited by maximum junction temperature.

2. Pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.

3. Surface mounted on 1 in² copper pad of FR4 board; 270°C/W when mounted on min.

TYPICAL CHARACTERISTICS

Fig 1. Typical Output Characteristics

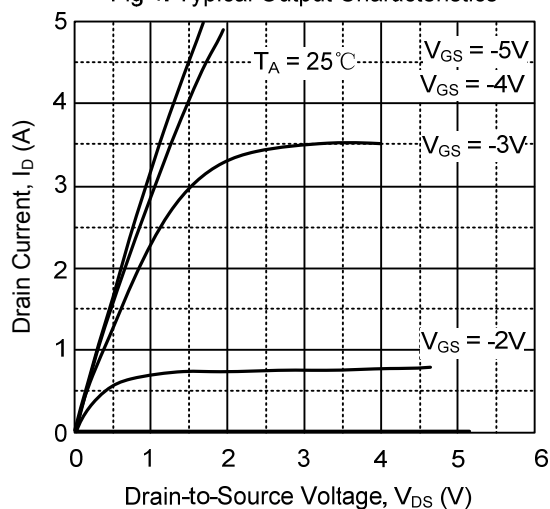


Fig 2. Typical Output Characteristics

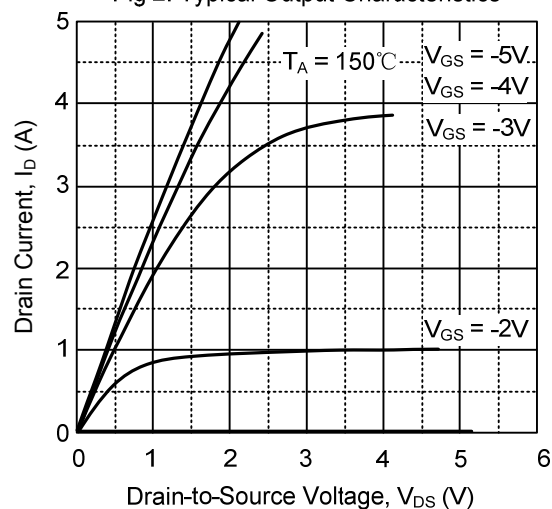


Fig 3. On-Resistance vs. Gate Voltage

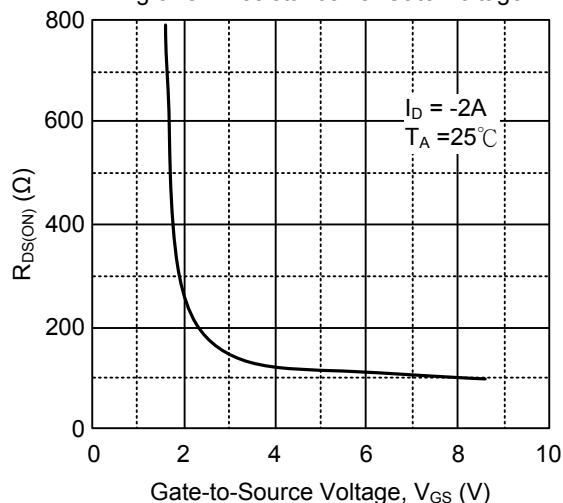


Fig 4. Normalized On-Resistance

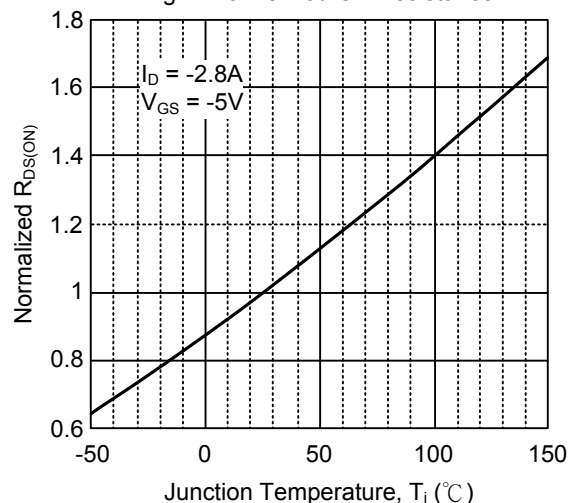


Fig 5. Forward Characteristic of Reverse Diode

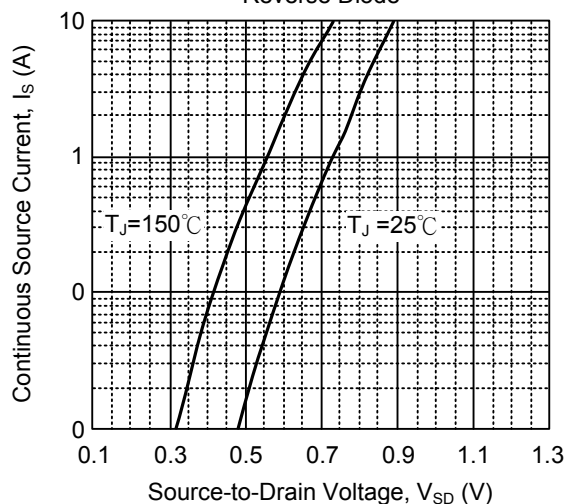
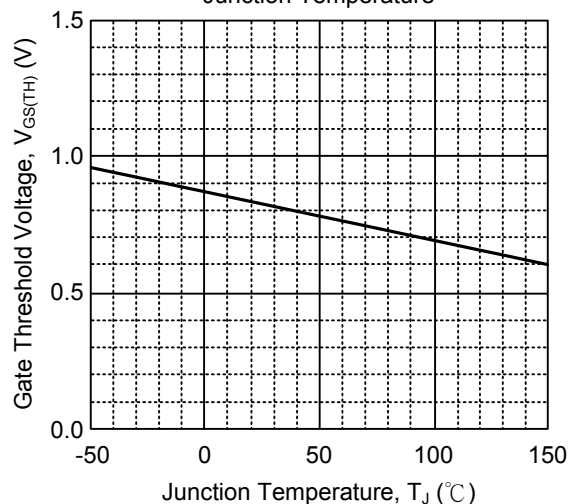


Fig 6. Gate Threshold Voltage vs. Junction Temperature



TYPICAL CHARACTERISTICS(Cont.)

Fig 7. Gate Charge Characteristics

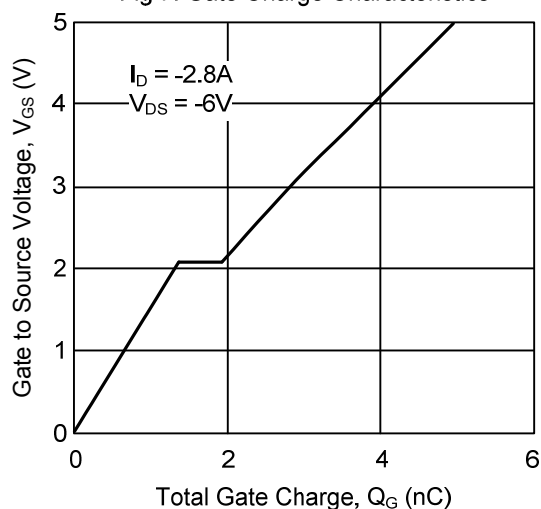


Fig 8. Typical Capacitance Characteristics

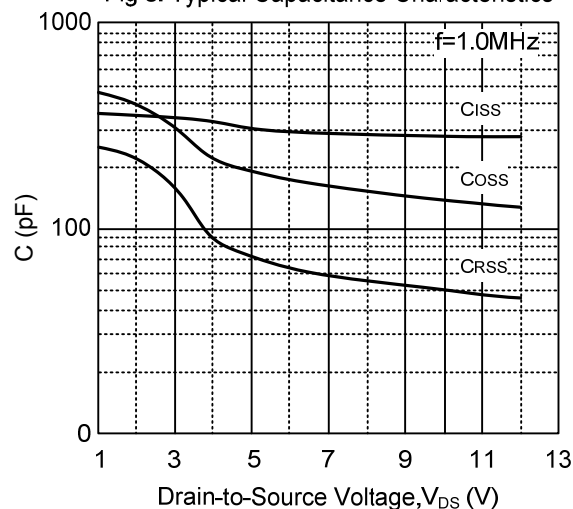


Fig 9. Maximum Safe Operating Area

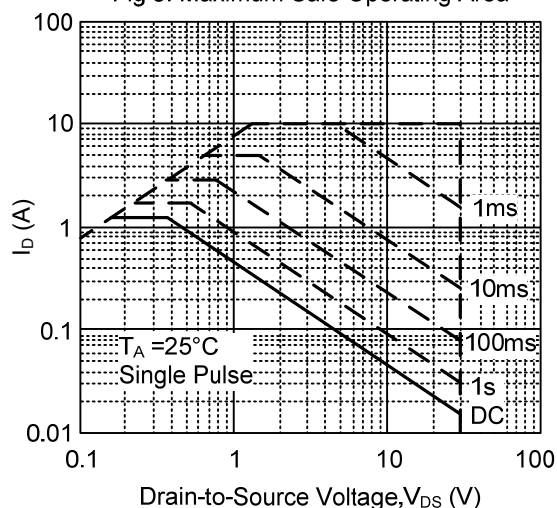


Fig 10. Effective Transient Thermal Impedance

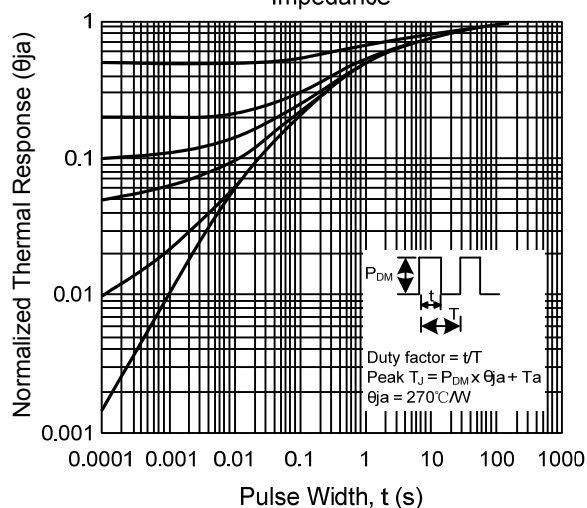


Fig 11. Switching Time Waveform

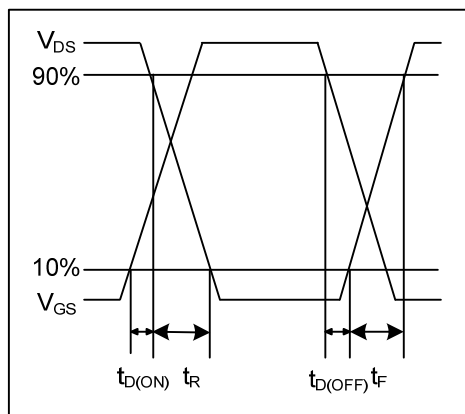
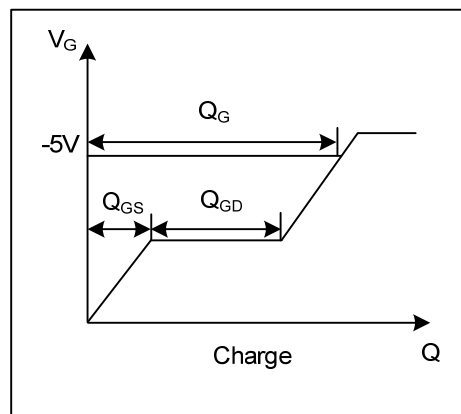


Fig 12. Gate Charge Waveform



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