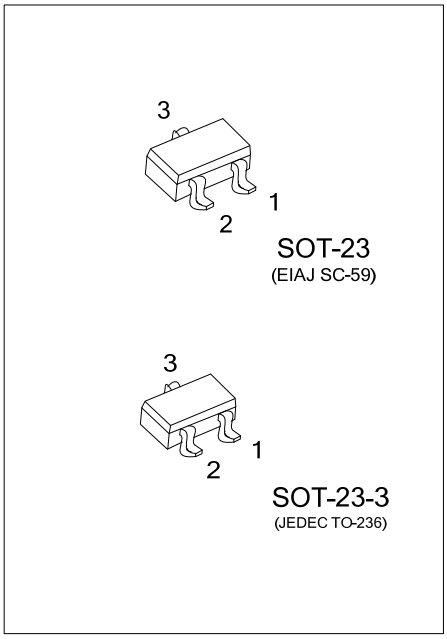
UT2301

Power MOSFET

Y2.8A, 20V P-CHANNEL ENHANCEMENT MODE POWER MOSFET

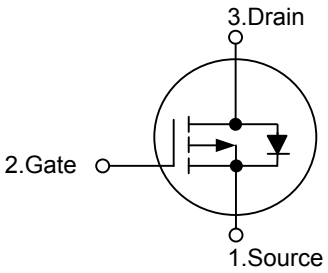


■ DESCRIPTION

The UTC **UT2301** 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



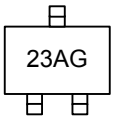
■ ORDERING INFORMATION

Ordering Number	Package	Pin Assignment			Packing
		1	2	3	
UT2301G-AE2-R	SOT-23-3	S	G	D	Tape Reel
UT2301G-AE3-R	SOT-23	S	G	D	Tape Reel

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

UT2301G-AE3-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

■ MARKING



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

PARAMETER	SYMBOL	RATING	UNIT
Drain-Source Voltage	V_{DSS}	-20	V
Gate-Source Voltage	V_{GSS}	±8	V
Continuous Drain Current	I_D	-2.8	A
Pulsed Drain Current (Note 1, 2)	I_{DM}	-10	A
Total Power Dissipation	P_D	1.14	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}	110	°C/W

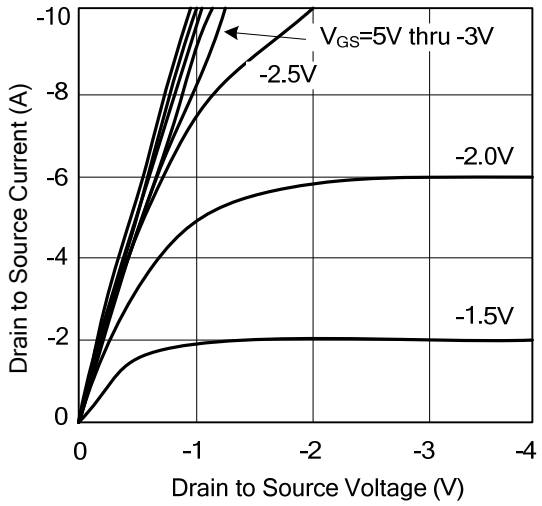
■ ELECTRICAL CHARACTERISTICS (T_J=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V, I_D=-250uA	-20			V
Drain-Source Leakage Current	I_{DSS}	V_{DS}=-16V, V_{GS}=0V			-1	μA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±8V, V_{DS}=0V			±100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	V_{DS}=V_{GS}, I_D=-250uA	-0.45			V
Static Drain-Source On-State Resistance (Note 2)	$R_{DS(ON)}$	V_{GS}=-4.5V, I_D=-2.8A		95	130	mΩ
		V_{GS}=-2.5V, I_D=-2.0A		122	190	mΩ
DYNAMIC CHARACTERISTICS						
Input Capacitance	C_{ISS}	V_{GS}=0V, V_{DS}=-6V, f=1.0MHz		447		pF
Output Capacitance	C_{OSS}			127		pF
Reverse Transfer Capacitance	C_{RSS}			80		pF
SWITCHING CHARACTERISTICS						
Turn-ON Delay Time (Note 2)	$t_{D(ON)}$	V_{DS}=-6V, V_{GS}=-4.5V, I_D=-1A, R_G=6Ω, R_L=6Ω		5	25	ns
Turn-ON Rise Time	t_R			19	60	ns
Turn-OFF Delay Time	$t_{D(OFF)}$			95	110	ns
Turn-OFF Fall Time	t_F			65	80	ns
Total Gate Charge (Note 2)	Q_G	V_{DS}=-6V, V_{GS}=-4.5V, I_D=-2.8A		5.4	10	nC
Gate-Source Charge	Q_{GS}			0.8		nC
Gate-Drain Charge	Q_{GD}			1.1		nC
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Drain-Source Diode Forward Voltage (Note 2)	V_{SD}	V_{GS}=0V, I_S=-1.6A		-0.8	-1.2	V
Maximum Continuous Drain-Source Diode Forward Current	I_S				-1.6	A

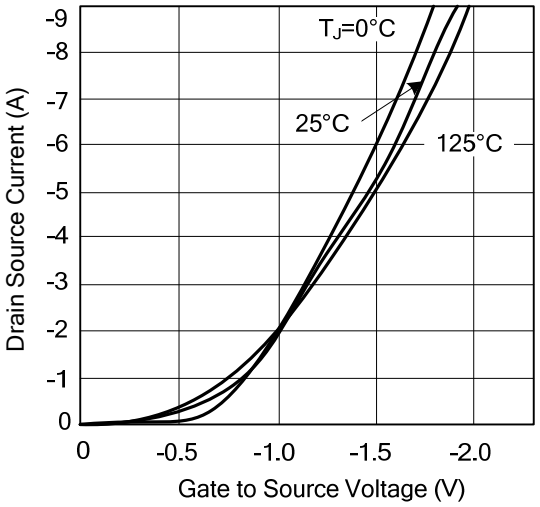
Notes: 1. Pulse width limited by $T_{J(MAX)}$
2. Pulse width ≤300μs, duty cycle ≤2%.
3. Surface mounted on 1 in^2 copper pad of FR4 board

■ TYPICAL CHARACTERISTICS

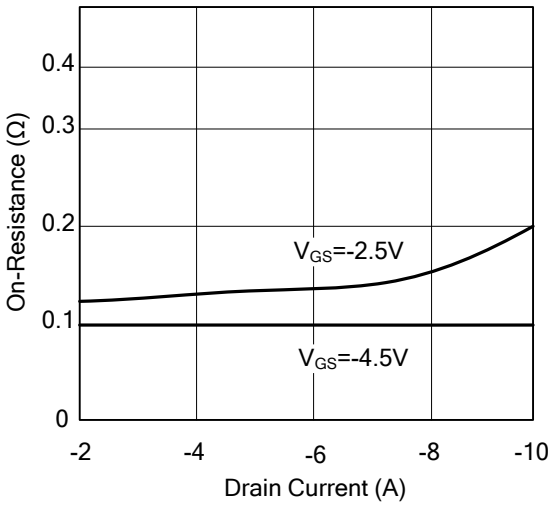
Output Characteristic



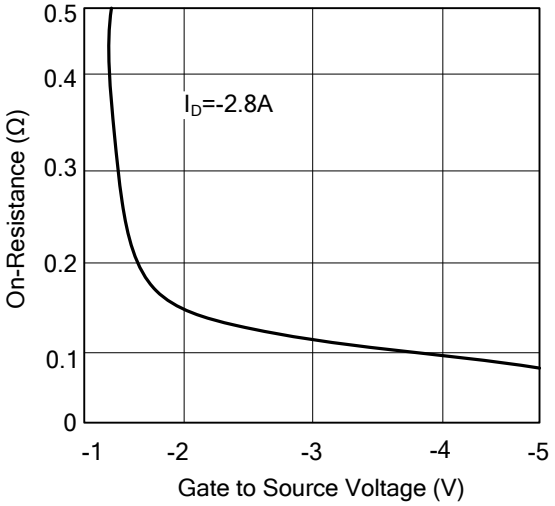
Transfer Characteristic



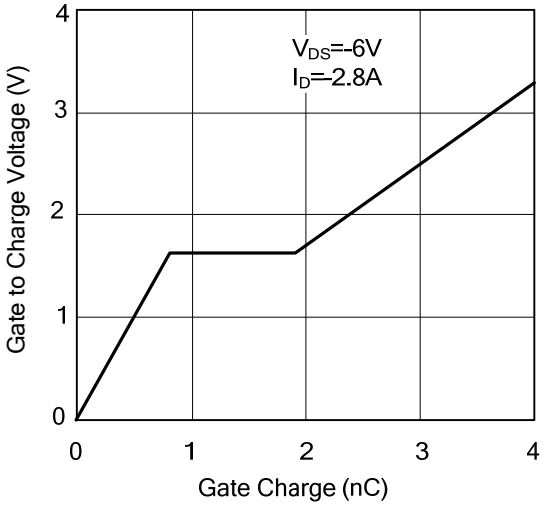
On Resistance vs. Drain Current



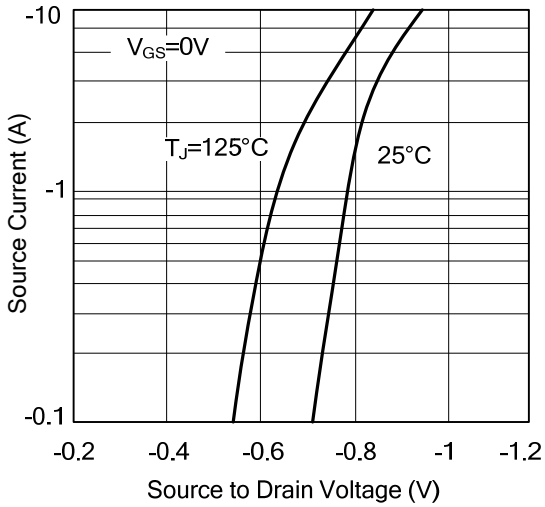
On Resistance vs. Gate-Source



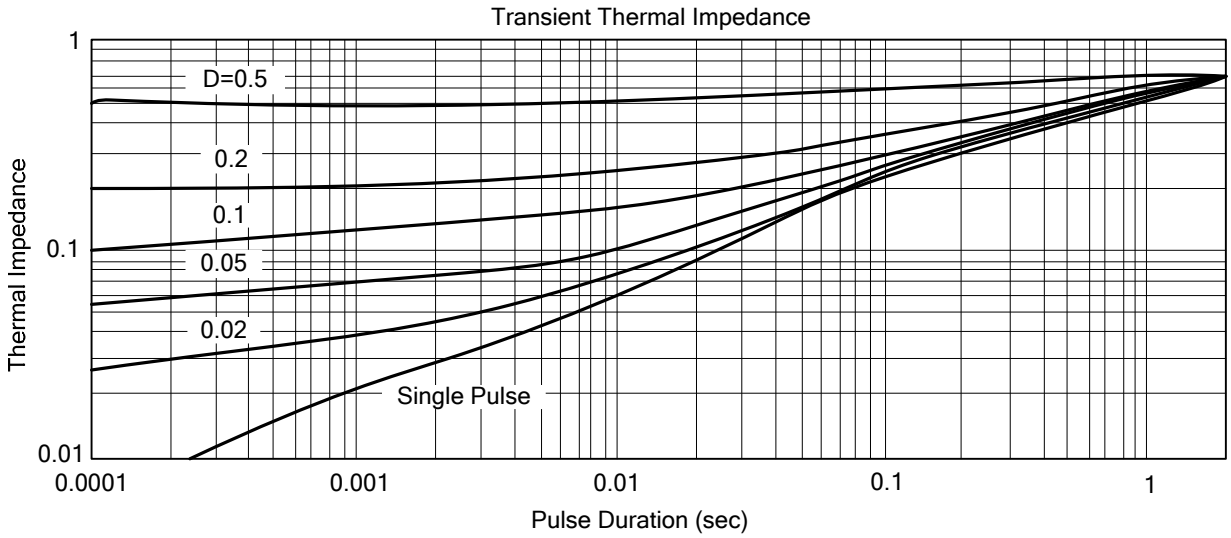
Gate Charge

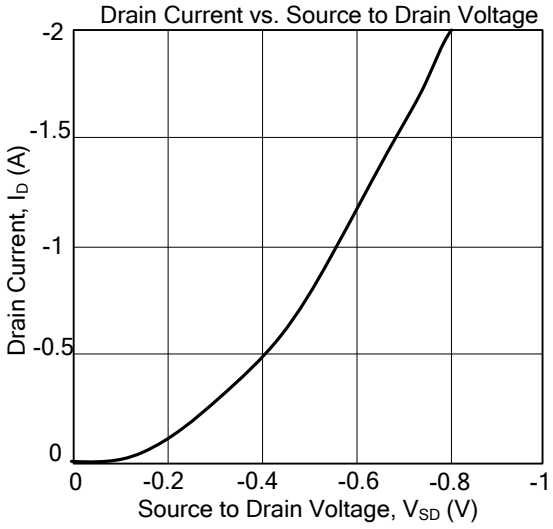


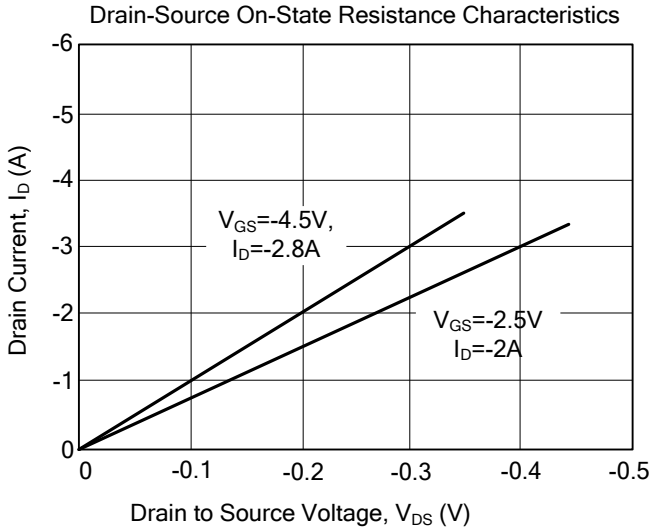
Source Drain Diode Forward Voltage

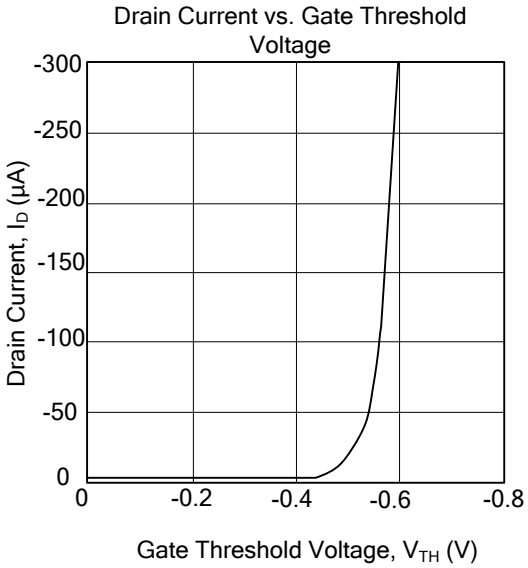


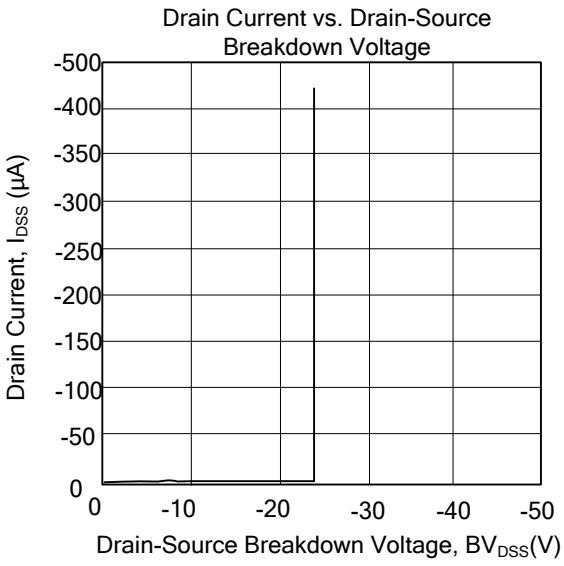
■ TYPICAL CHARACTERISTICS(Cont.)











■ TYPICAL CHARACTERISTICS(Cont.)