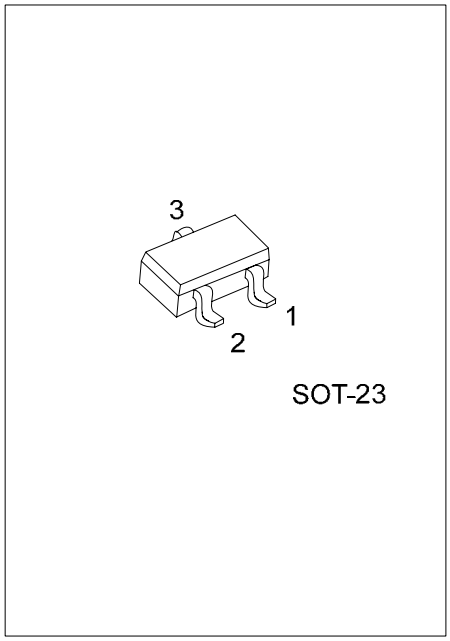
UT2316

Power MOSFET

N-CHANNEL ENHANCEMENT MODE



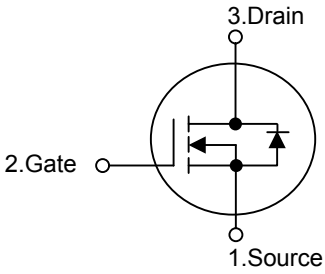
*Pb-free plating product number: UT2316L

■ DESCRIPTION

The UTC **UT2316L** is N-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

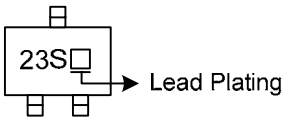


■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Normal	Lead Free Plating		1	2	3	
UT2316-AE3-R	UT2316L-AE3-R	SOT-23	S	G	D	Tape Reel

UT2316L-AE3-R (1)Packing Type (2)Package Type (3)Lead Plating	(1) R: Tape Reel (2) AE3: SOT-23 (3) L: Lead Free Plating, Blank: Pb/Sn

■ MARKING



■ ABSOLUTE MAXIMUM RATINGS (Ta = 25℃, unless otherwise specified)

PARAMETER	SYMBOL	RATING	UNITS
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current (Note 3)	I_D	3.6	A
Pulsed Drain Current (Note 1, 2)	I_{DM}	16	A
Total Power Dissipation (Ta=25℃)	P_D	0.96	W
Junction Temperature	T_J	+150	℃
Storage Temperature	T_{STG}	-55 ~ +150	℃

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	MIN	TYP	MAX	UNIT
Junction to Ambient (Note 3)	θ_{JA}			175	℃/W

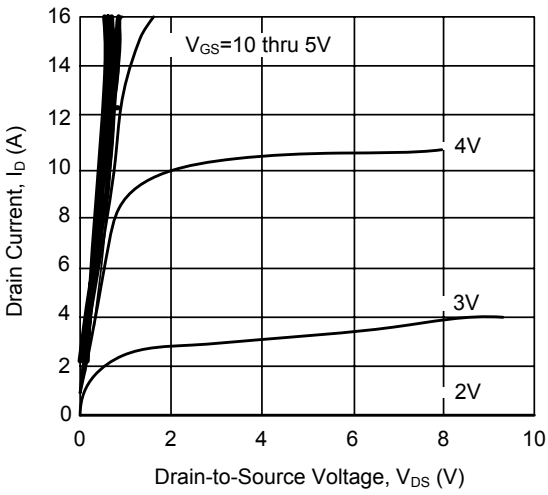
■ ELECTRICAL CHARACTERISTICS (T_J=25℃, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V, I_D=250μA	30			V
Drain-Source Leakage Current	I_{DSS}	V_{DS}=24V, V_{GS}=0V			1	μA
Gate-Source Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS}=±20V			±100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	V_{DS}=V_{GS}, I_D=250μA	0.8			V
On-State Drain Current	$I_{D(ON)}$	V_{DS} = 4.5V, V_{GS} = 10V	6			A
		V_{DS} = 4.5V, V_{GS} = 4.5V	4			A
Drain-Source On-State Resistance (Note 2)	$R_{DS(ON)}$	V_{GS}=10V, I_D=3.4A		42	50	mΩ
		V_{GS}=4.5V, I_D=2.6A		68	85	mΩ
DYNAMIC CHARACTERISTICS						
Input Capacitance	C_{ISS}	V_{DS}=15V,V_{GS}=0V, f=1.0MHz		215		pF
Output Capacitance	C_{OSS}			90		pF
Reverse Transfer Capacitance	C_{RSS}			55		pF
SWITCHING CHARACTERISTICS						
Turn-ON Delay Time	$t_{D(ON)}$	V_{DD}=15V, V_{GS}=10V, I_D 1A, R_G=6Ω, R_L=15Ω		9	15	ns
Turn-ON Rise Time	t_R			9	15	ns
Turn-OFF Delay Time	$t_{D(OFF)}$			14	20	ns
Turn-OFF Fall Time	t_F			6	12	ns
Total Gate Charge	Q_G	V_{DS}=15V, V_{GS}=10V, I_D=3.6A		4.3	7	nC
Gate-Source Charge	Q_{GS}			0.65		nC
Gate-Drain Charge	Q_{GD}			1.2		nC
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Drain-Source Diode Forward Voltage(Note2)	V_{SD}	V_{GS}=0V, I_S=0.8A		0.88	1.2	V
Maximum Continuous Drain-Source Diode Forward Current	I_S	V_D=V_G=0V, V_S=1.2V		0.8		A

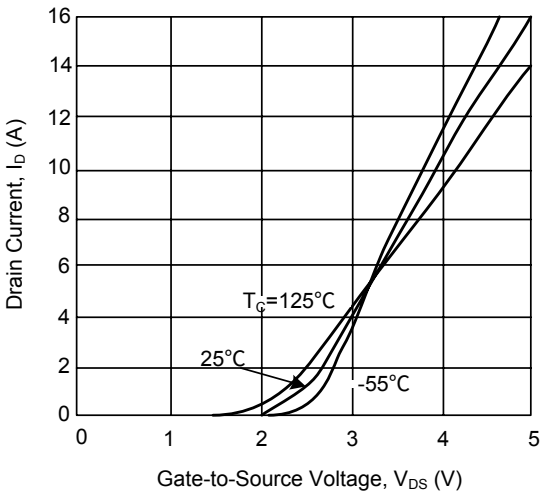
Notes: 1. Pulse width limited by $T_{J(MAX)}$
2. Pulse width ≤300us, duty cycle ≤2%.
3. Surface mounted on 1 in^2 copper pad of FR4 board

■ TYPICAL CHARACTERISTICS

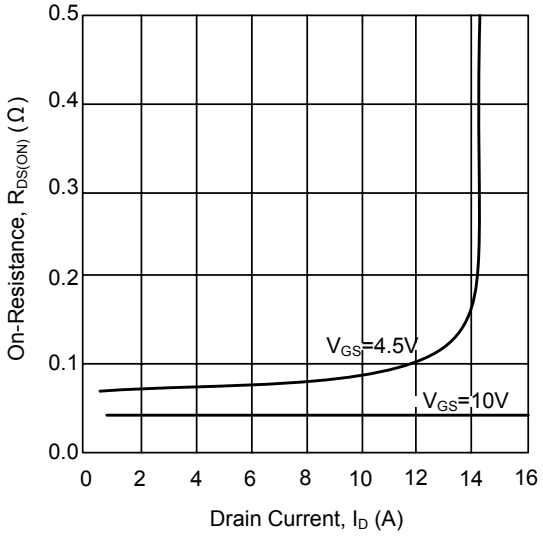
Typical Output Characteristics



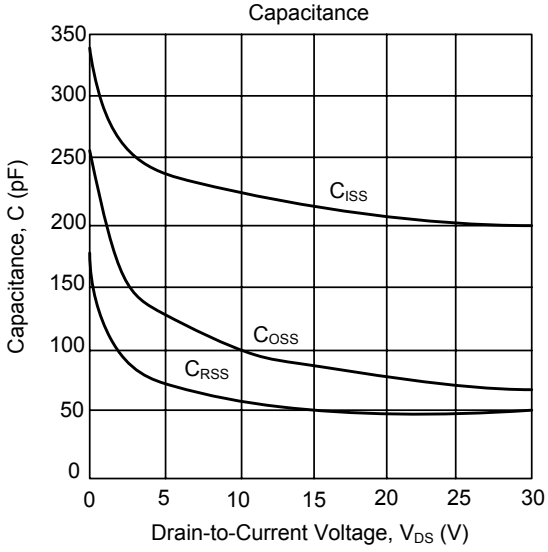
Transfer Characteristics



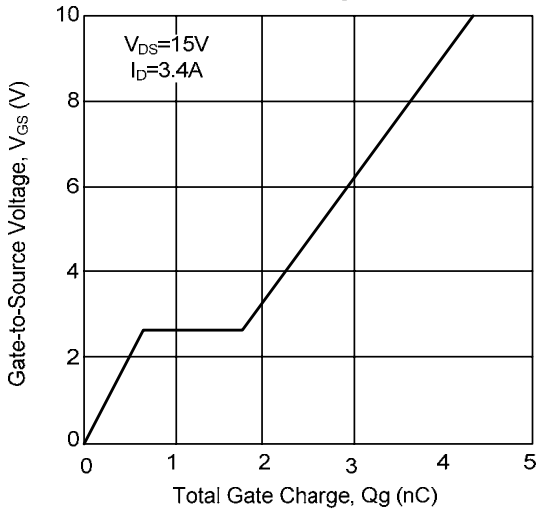
On-Resistance vs. Drain Current



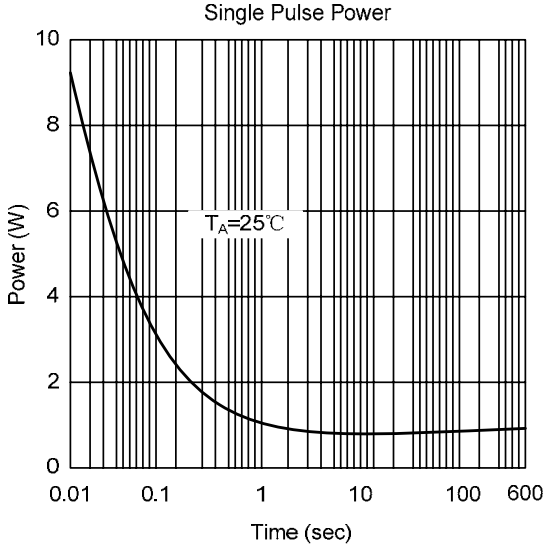
Capacitance



Gate Charge

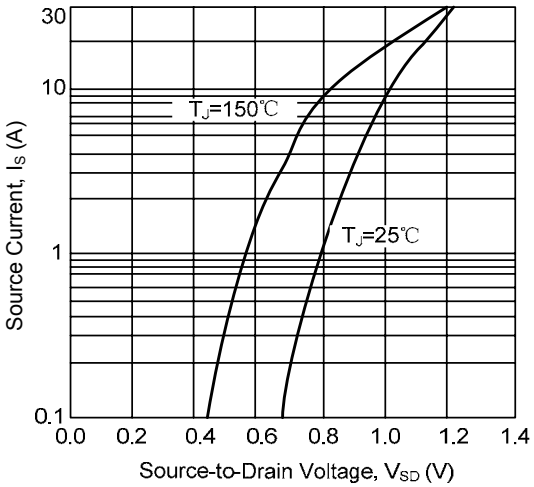


Single Pulse Power

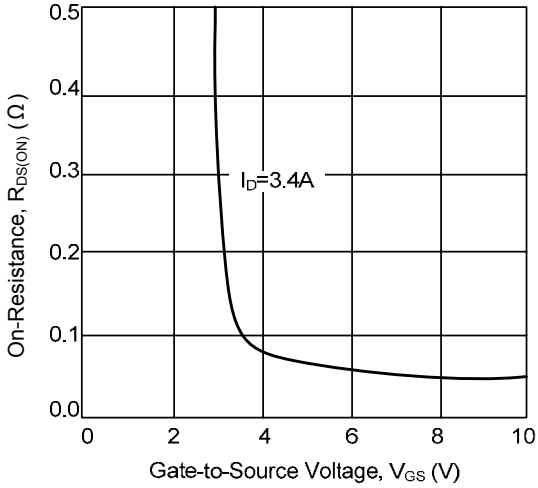


■ TYPICAL CHARACTERISTICS(Cont.)

Source Current Diode Forward Voltage



On-Resistance vs. Gate-to-Source Voltage



Normalized Thermal Transient Impedance