



UT7401

Power MOSFET

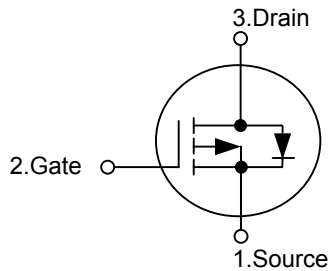
1.2A, 30V P-CHANNEL ENHANCEMENT MODE POWER MOSFET

DESCRIPTION

The UTC **UT7401** 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

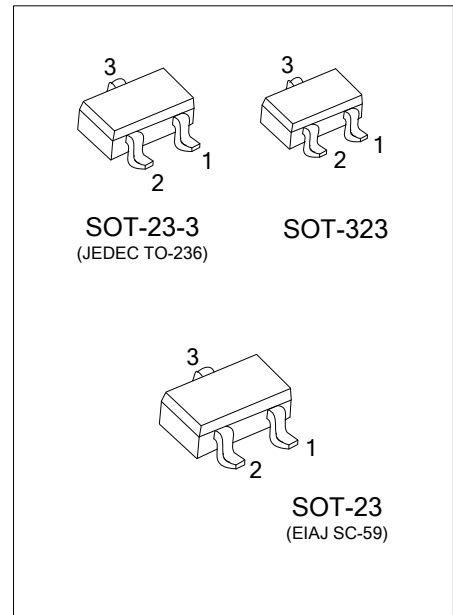
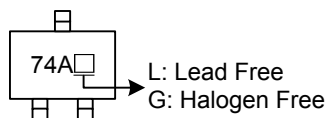


ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UT7401L-AE2-R	UT7401G-AE2-R	SOT-23-3	S	G	D	Tape Reel
UT7401L-AE3-R	UT7401G-AE3-R	SOT-23	S	G	D	Tape Reel
UT7401L-AL3-R	UT7401G-AL3-R	SOT-323	S	G	D	Tape Reel

	(1)Packing Type	(1) R: Tape Reel
	(2)Package Type	(2) AE2: SOT-23-3, AE3: SOT-23, AL3: SOT-323
	(3)Lead Free	(3) G: Halogen Free, L: Lead Free

MARKING



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

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V _{DSS}	-30	V
Gate-Source Voltage		V _{GSS}	±12	V
Continuous Drain Current (Note 2)	T _A =25°C	I _D	-1.2	A
	T _A =70°C		-1.0	A
Pulsed Drain Current (Note 3)		I _{DM}	-10	A
Power Dissipation (Note 2)	T _A =25°C	P _D	350	mW
	T _A =70°C		220	mW
Junction Temperature		T _J	+150	°C
Storage Temperature		T _{STG}	-55 ~ +150	°C

Note: 1. 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.

2. Pulse width limited by $T_{J(MAX)}$

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

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient (Note 2)	θ_{JA}	425	$^\circ\text{C/W}$

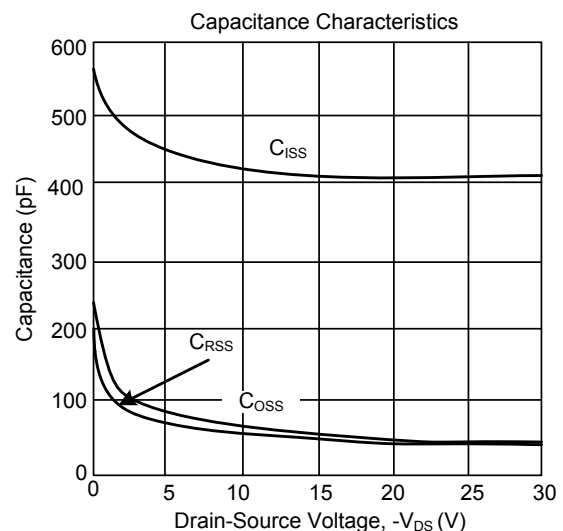
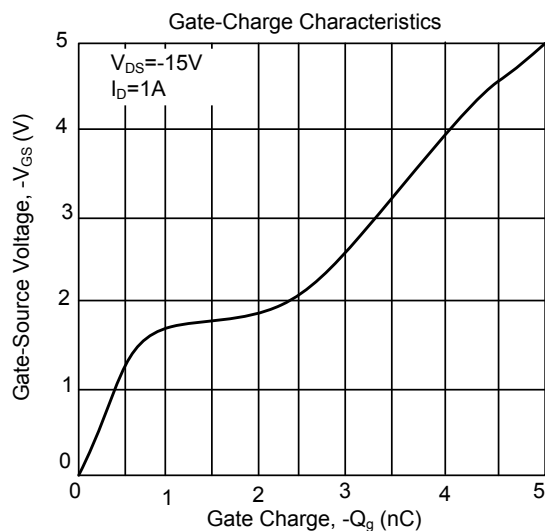
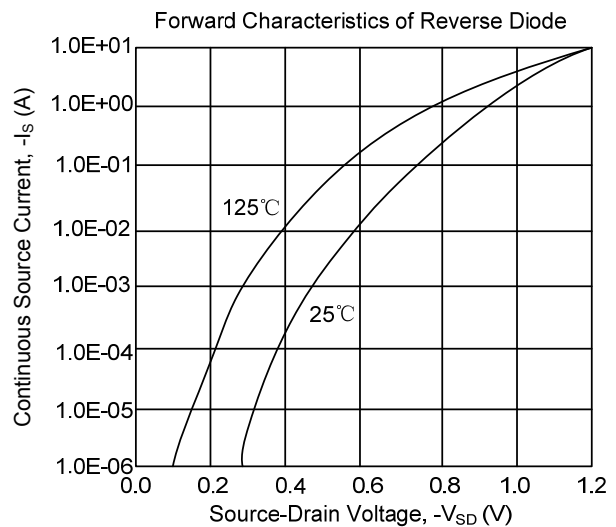
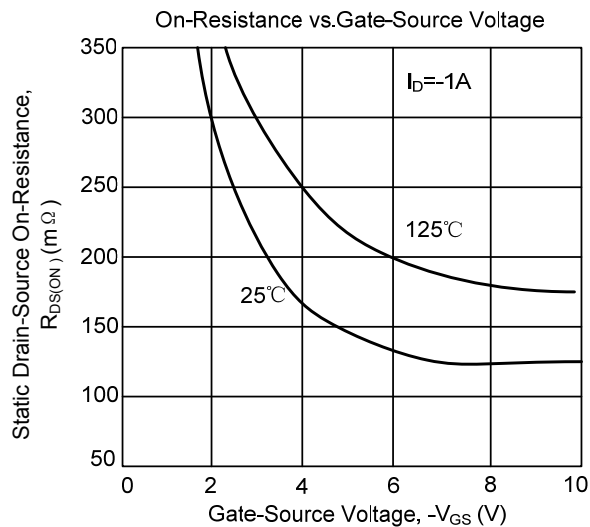
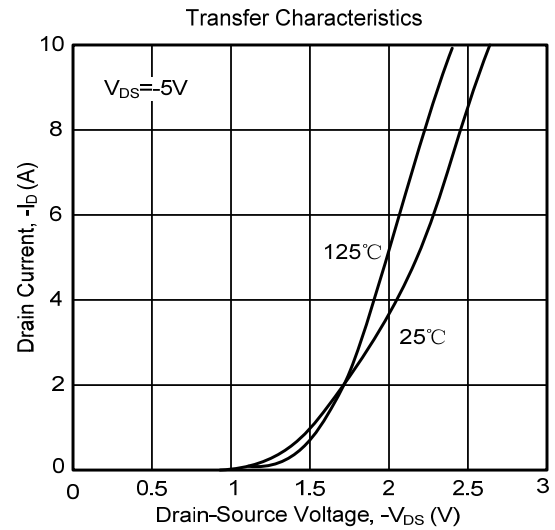
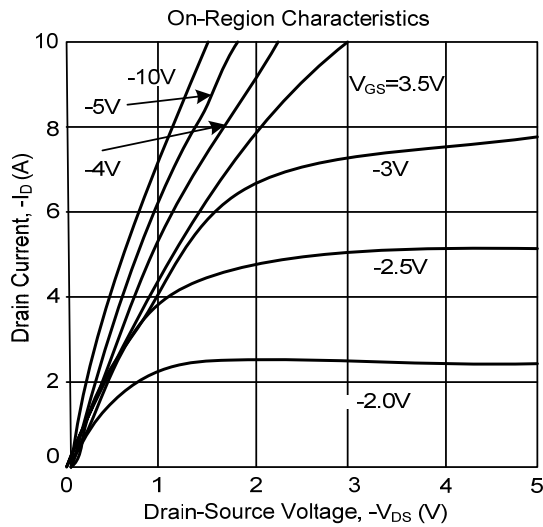
■ ELECTRICAL CHARACTERISTICS ($T_J=25^\circ\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =-250uA	-30			V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =-24V, V _{GS} =0V			-1	uA
Gate-Source Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±12V			±100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =-250uA	-0.6	-1	-1.4	V
Drain-Source On-State Resistance (Note 1)	R _{DS(ON)}	V _{GS} =-10V, I _D =-1.2A		122	150	mΩ
		V _{GS} =-4.5V, I _D =-1.2A		147	200	mΩ
		V _{GS} =-2.5V, I _D =-1.0A		207	280	mΩ
DYNAMIC CHARACTERISTICS						
Input Capacitance	C _{ISS}	V _{GS} =0V, V _{DS} =-15V, f=1MHz		409		pF
Output Capacitance	C _{OSS}			55		pF
Reverse Transfer Capacitance	C _{RSS}			42		pF
SWITCHING CHARACTERISTICS						
Turn-ON Delay Time (Note 1)	t _{D(ON)}	V _{DS} =-15V, V _{GS} =-10V, R _G =3Ω, R _L =15Ω		6.2		ns
Turn-ON Rise Time	t _R			3.2		ns
Turn-OFF Delay Time	t _{D(OFF)}			41.2		ns
Turn-OFF Fall Time	t _F			14.5		ns
Total Gate Charge (Note 1)	Q _G	V _{DS} =-15V, V _{GS} =-4.5V, I _D =-1A		5.06		nC
Gate-Source Charge	Q _{GS}			0.72		nC
Gate-Drain Charge	Q _{GD}			1.58		nC
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Drain-Source Diode Forward Voltage(Note2)	V _{SD}	V _{GS} =0V, I _S =-1A		-0.85	-1	V
Maximum Continuous Drain-Source Diode Forward Current	I _S				-0.5	A

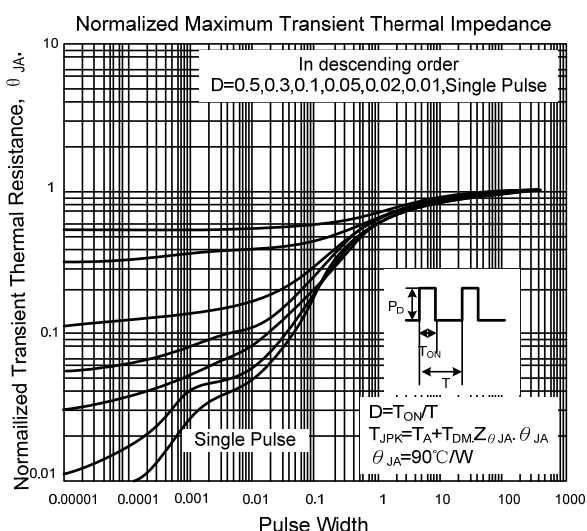
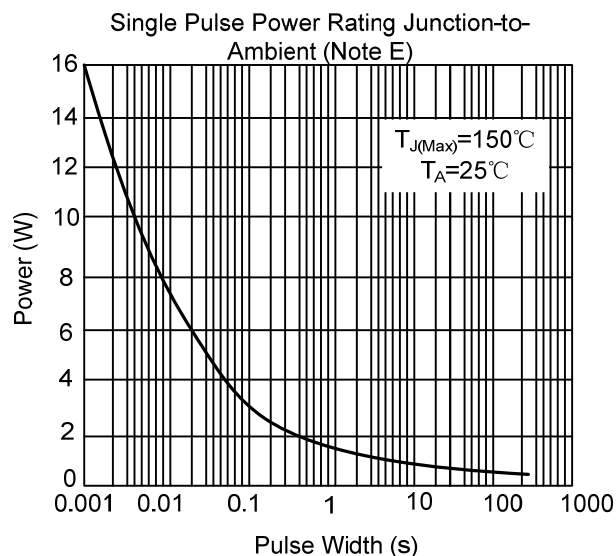
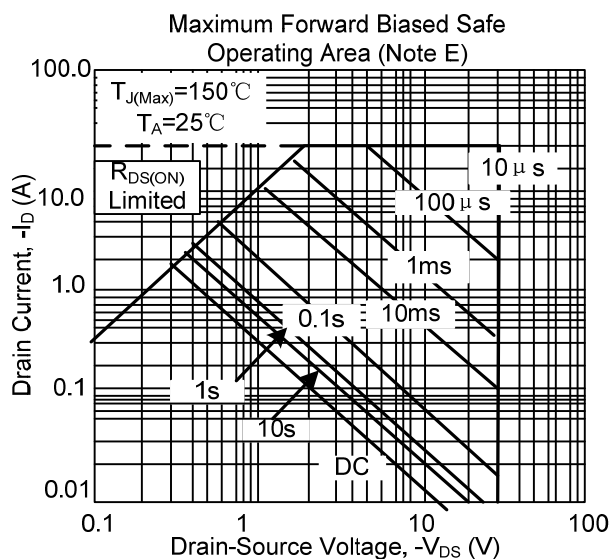
Notes: 1. Pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.

2. Surface mounted on 1 in² copper pad of FR4 board

■ TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS(Cont.)



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