



UT3418

Power MOSFET

N-CHANNEL ENHANCEMENT MODE FIELD EFFECT TRANSISTOR

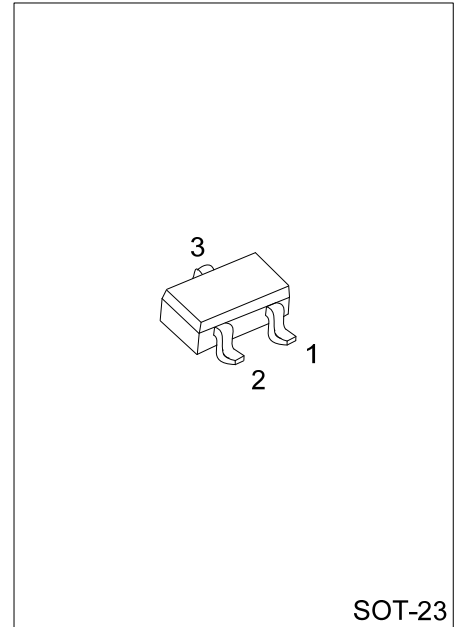
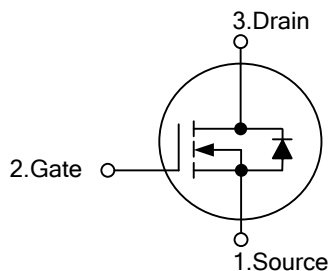
DESCRIPTION

The **UT3418** uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with low gate voltages. This device is suitable for use as a load switch or in PWM applications.

FEATURES

- * $R_{DS(ON)} < 60m\Omega @ V_{GS} = 10V$
- * $R_{DS(ON)} < 70m\Omega @ V_{GS} = 4.5V$
- * $R_{DS(ON)} < 155m\Omega @ V_{GS} = 2.5V$
- * Low capacitance
- * Low gate charge
- * Fast switching capability
- * Avalanche energy specified

SYMBOL

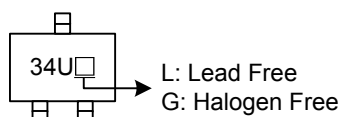


ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UT3418L-AE3-R	UT3418G-AE3-R	SOT-23	S	G	D	Tape Reel

UT3418L-AE3-R		(1) Packing Type	(1) R: Tape Reel
		(2) Package Type	(2) AE3: SOT-23
		(3) Lead Plating	(3) G: Halogen Free, L: Lead Free

MARKING



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

PARAMETER	SYMBOL	RATINGS	UNITS
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current	I_D	3.8	A
Pulsed Drain Current (Note 2)	I_{DM}	15	A
Power Dissipation	P_D	1.4	W
Junction Temperature	T_J	+150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55 ~ +150	$^\circ\text{C}$

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 $T_{J(MAX)}$

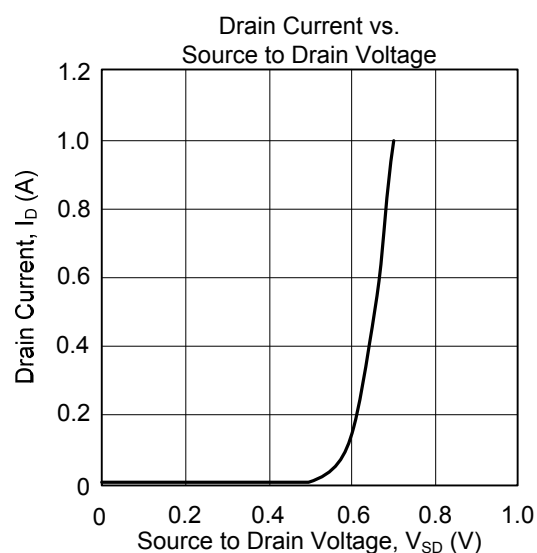
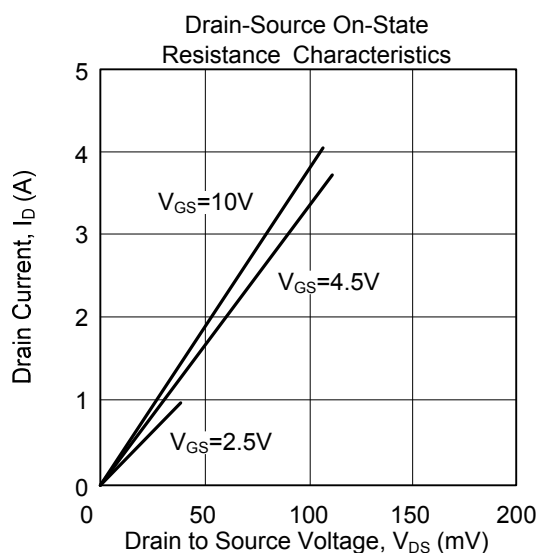
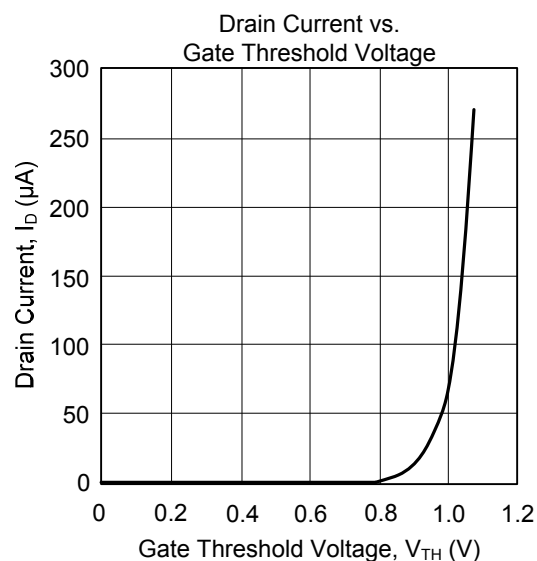
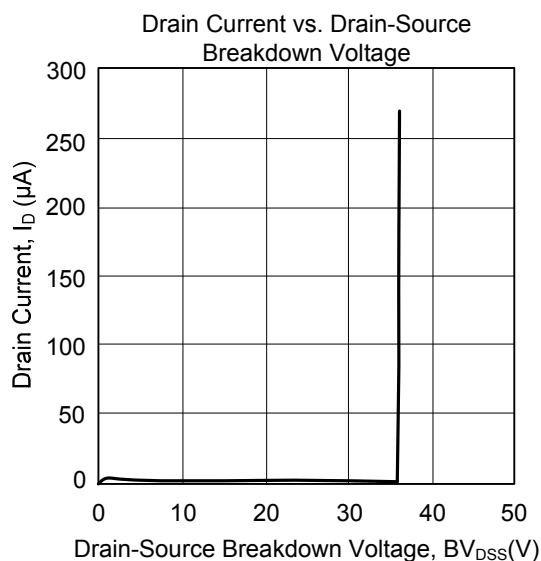
■ THERMAL DATA

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Junction to Ambient	θ_{JA}		100	125	$^\circ\text{C/W}$

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	I _D =250μA, V _{GS} =0V	30			V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =24V, V _{GS} =0V		0.001	1	μA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±12V, V _{DS} =0V			100	nA
ON CHARACTERISTICS						
Gate-Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =250μA	1	1.4	1.8	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =3.8A		43	60	mΩ
		V _{GS} =4.5V, I _D =3.5A		52	70	mΩ
		V _{GS} =2.5V, I _D =1A		101	155	mΩ
On-State Drain Current	I _{D(ON)}	V _{DS} =5V, V _{GS} =4.5V	15			A
DYNAMIC PARAMETERS						
Input Capacitance	C _{ISS}	V _{DS} =15V, V _{GS} =0V, f=1.0MHz		226	270	pF
Output Capacitance	C _{OSS}			39		pF
Reverse Transfer Capacitance	C _{RSS}			29		pF
SWITCHING PARAMETERS						
Turn-ON Delay Time	t _{D(ON)}	V _{DS} =15V, R _L =3.9Ω, V _{GS} =10V, R _G =6Ω		2.6	4	ns
Turn-ON Rise Time	t _R			3.2	5	ns
Turn-OFF Delay Time	t _{D(OFF)}			14.5	22	ns
Turn-OFF Fall-Time	t _F			2.1	3	ns
Total Gate Charge	Q _G	V _{DS} =15V, V _{GS} =4.5V, I _D =3.8A		3	3.6	nC
Gate Source Charge	Q _{GS}			1.4		nC
Gate Drain Charge	Q _{GD}			0.55		nC
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Diode Forward Voltage	V _{SD}	I _S =1A, V _{GS} =0V		0.81	1	V
Maximum Body-Diode Continuous Current	I _S				2.5	A
Body Diode Reverse Recovery Time	t _{RR}	I _F =3.8A, dI/dt=100A/μs		10.2	13	ns
Body Diode Reverse Recovery Charge	Q _{RR}			3.8	5	nC

TYPICAL CHARACTERISTICS



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