



UD4809

Power MOSFET

N-CHANNEL ENHANCEMENT MODE

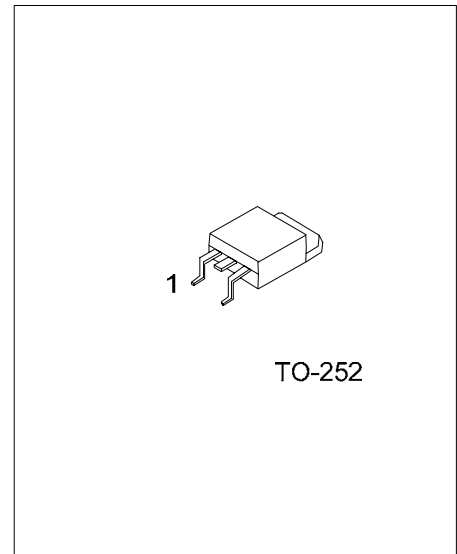
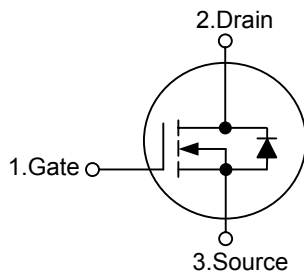
DESCRIPTION

This **UD4809** N-Channel MOSFET is produced using UTC advanced process which has been tailored to make the on-state resistance minimum and yet maintain low gate charge for superior switching performance especially. The **UD4809** is well suited for where low in-line power loss is needed in a very small outline surface mount package, such as low voltage and battery powered applications.

FEATURES

- * Low $R_{DS(ON)}$
- * Low capacitance
- * Optimized gate charge

SYMBOL



TO-252

*Pb-free plating product number: UD4809L

ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Normal	Lead Free Plating		1	2	3	
UD4809-TN3-R	UD4809L-TN3-R	TO-252	G	D	S	Tape Reel
UD4809-TN3-T	UD4809L-TN3-T	TO-252	G	D	S	Tube

UD4809L-TN3-R (1)Packing Type (2)Package Type (3)Lead Plating		(1) R: Tape Reel, T: Tube (2) TN3: TO-252 (3) L: Lead Free Plating, Blank: Pb/Sn
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■ ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 20	
Continuous Drain Current (Note 3)	I_D	9.0	A
Drain to Source dv/dt	dv/dt	6.0	V/ns
Power Dissipation (Note 3)	P_D	1.3	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}			116	/W
Junction-to-Case	θ_{JC}			2.9	/W

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

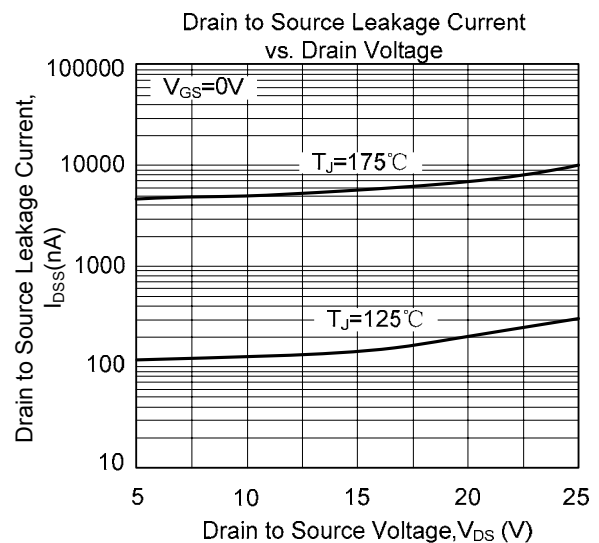
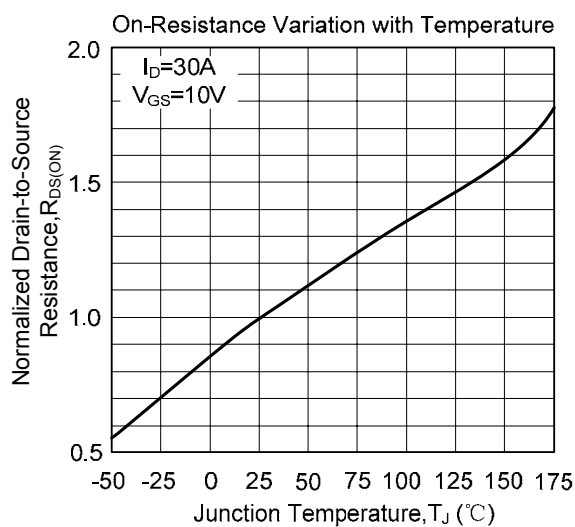
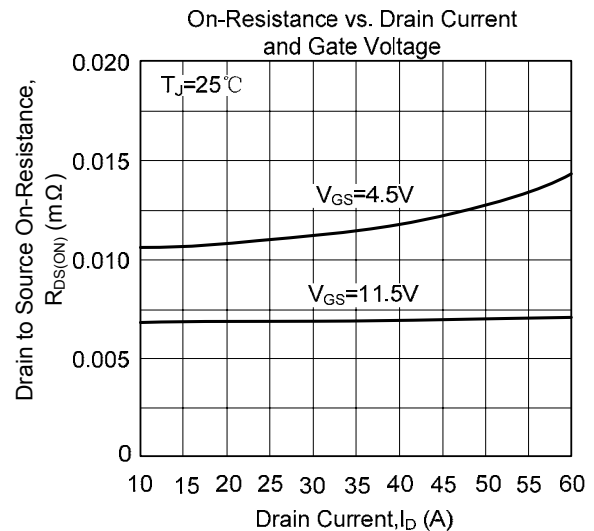
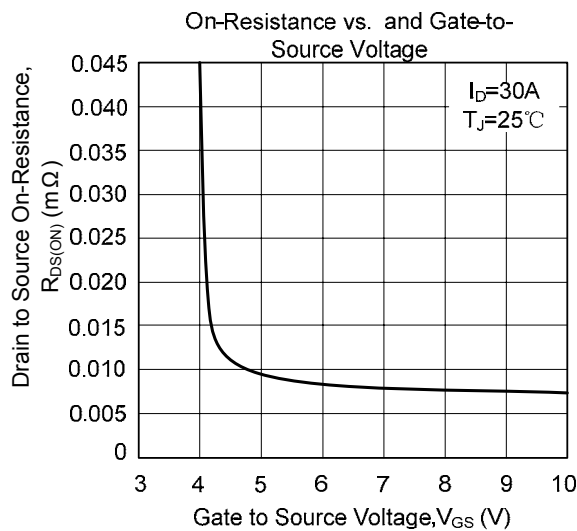
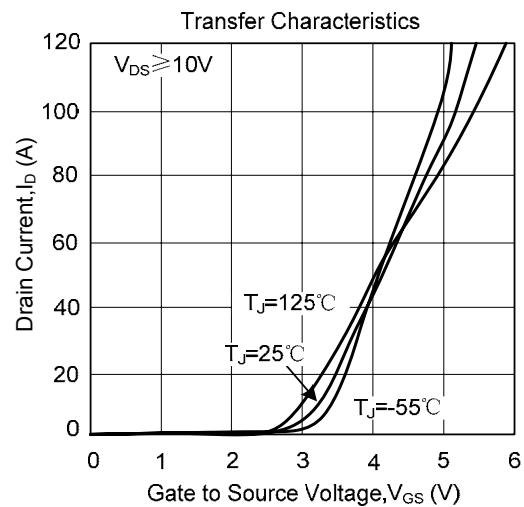
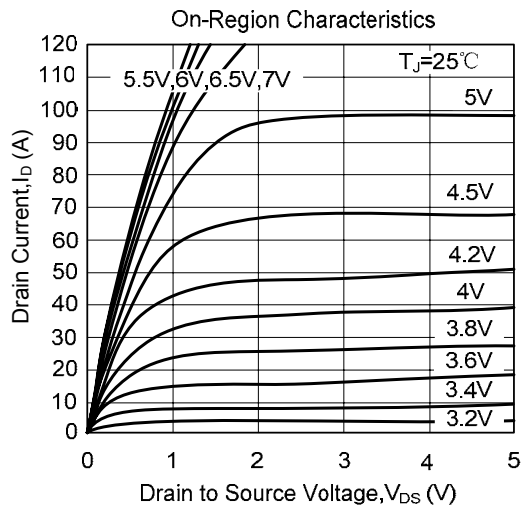
PARAMETER	SYMBOL	TEST CONDITIONS		MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0 V, I _D =250μA		30			V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =24V, V _{GS} =0 V				1.0	μA
Gate-Source Leakage Current	I _{GSS}	V _{DS} =0 V, V _{GS} = ±20V				±100	nA
ON CHARACTERISTICS							
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =250 μA		1.5		2.5	V
Static Drain-Source On-Resistance (Note 2)	R _{DS(ON)}	V _{GS} =10~11.5 V	I _D =30 A		7.0	9.0	mΩ
			I _D =15 A		7.0		
		V _{GS} =4.5 V	I _D =30 A		12	14	mΩ
			I _D =15 A		11		
DYNAMIC PARAMETERS							
Input Capacitance	C _{ISS}	V _{DS} =12 V, V _{GS} =0V, f=1MHz			1456		pF
Output Capacitance	C _{OSS}				315		
Reverse Transfer Capacitance	C _{RSS}				200		
SWITCHING PARAMETERS							
Turn-ON Delay Time	t _{D(ON)}	V _{GS} =4.5V,V _{DS} =15V, I _D =15A, R _G =3.0Ω			12.3		ns
Turn-ON Rise Time	t _R				21.3		
Turn-OFF Delay Time	t _{D(OFF)}				15.1		
Turn-OFF Fall-Time	t _F				5.3		
Turn-ON Delay Time	t _{D(ON)}	V _{GS} =11.5V,V _{DS} =15V, I _D =15A, R _G =3.0Ω			7.0		ns
Turn-ON Rise Time	t _R				22.7		
Turn-OFF Delay Time	t _{D(OFF)}				25.3		
Turn-OFF Fall-Time	t _F				2.8		
Total Gate Charge	Q _{G(TOT)}	V _{DS} =15V, V _{GS} =4.5V, I _D =30A			11	13	nC
Threshold Gate Charge	Q _{G(TH)}				2.5		
Gate-Source Charge	Q _{GS}				4.8		
Gate-Drain Charge	Q _{GD}				5.0		
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS							
Diode Forward Voltage	V _{SD}	I _S =30A,V _{GS} =0V			0.95	1.2	V
Source Current (Body Diode)	I _S					43	A
Reverse Recovery Time	t _{RR}	V _{GS} = 0 V, dIs/dt= 100 A/ s,			19.5		ns
Reverse Recovery Time	Q _{RR}	I _S = 30 A			9.2		nC

Note: 1. Pulse width limited by $T_{J(MAX)}$

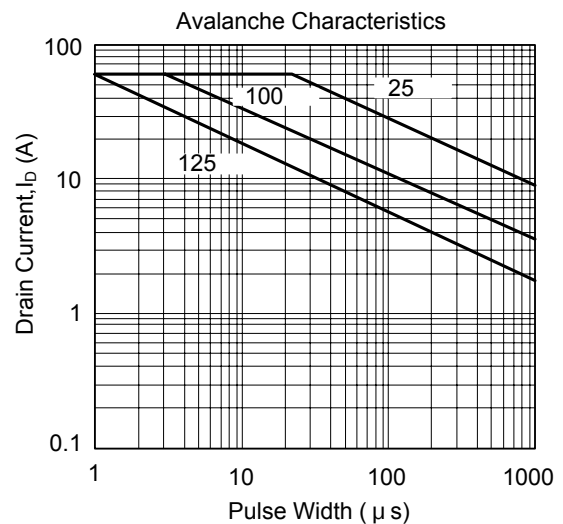
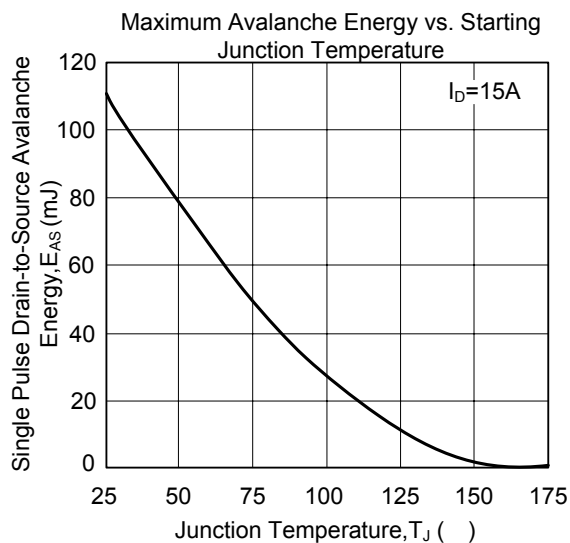
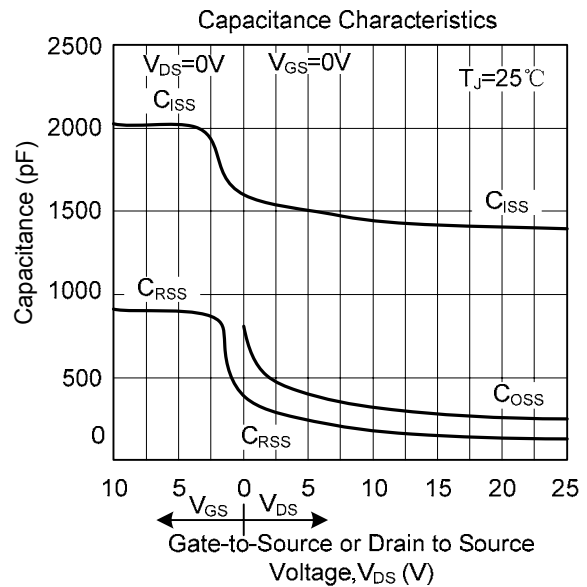
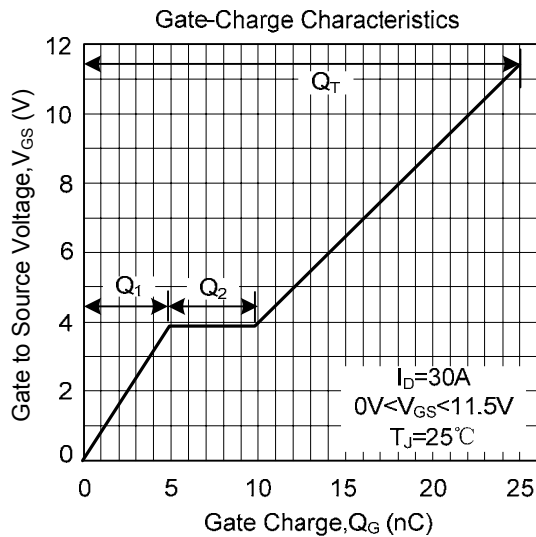
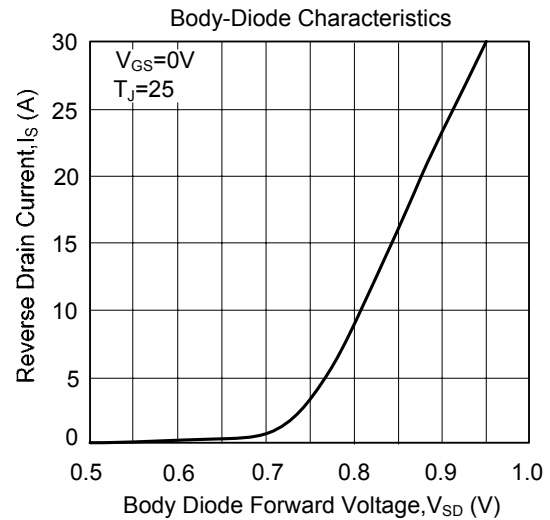
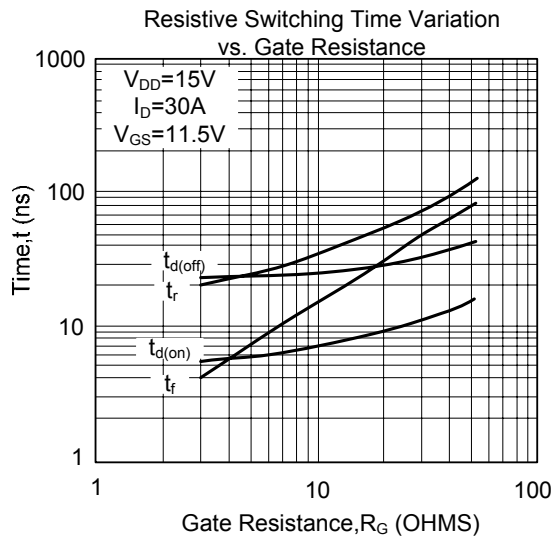
2. Pulse Test: Pulse Width $\leq 300\text{ s}$, Duty Cycle $\leq 2\%$.

3. Surface-mounted on FR4 board using the minimum recommended pad size.

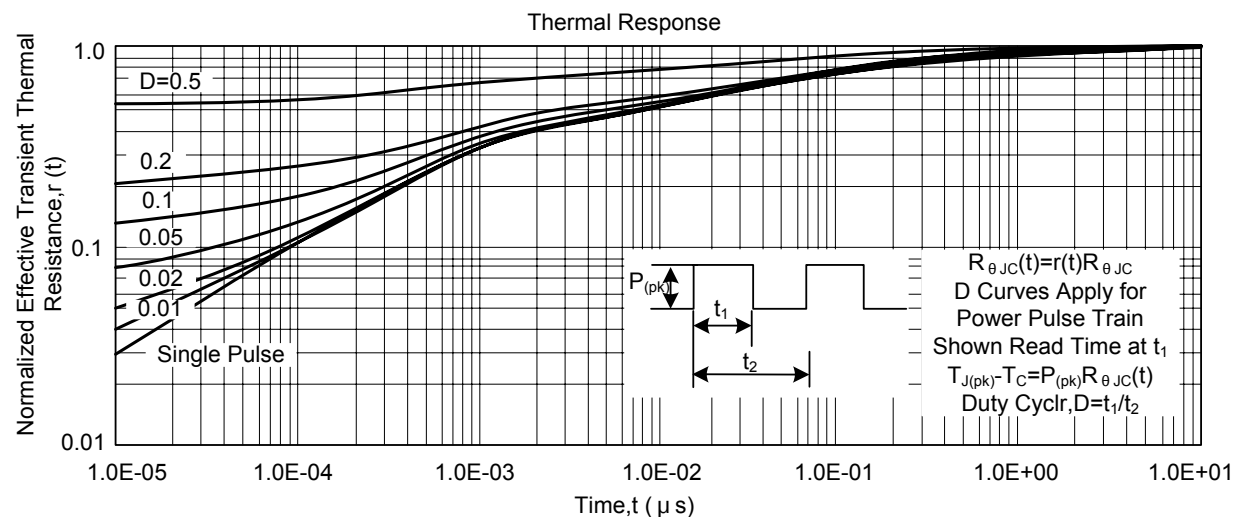
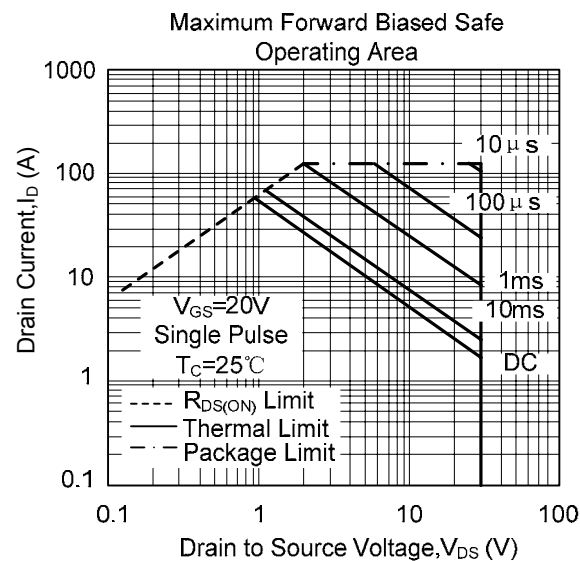
TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS(Cont.)



TYPICAL CHARACTERISTICS(Cont.)



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