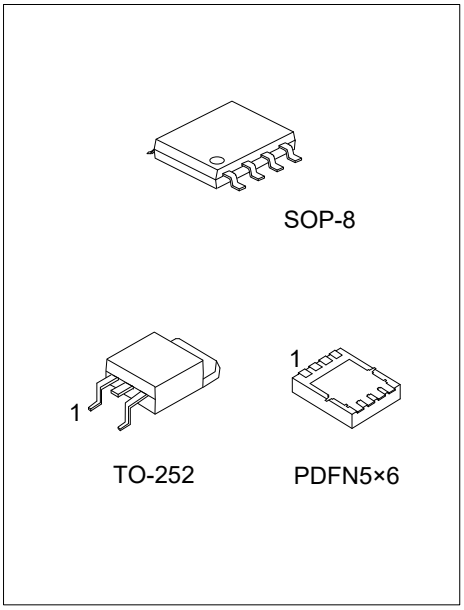
UT4809

Power MOSFET

N-CHANNEL ENHANCEMENT MODE



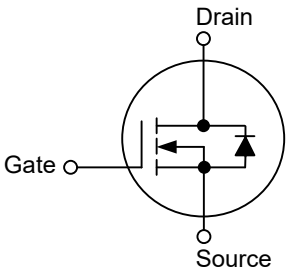
■ DESCRIPTION

This **UT4809** 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 **UT4809** 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



■ ORDERING INFORMATION

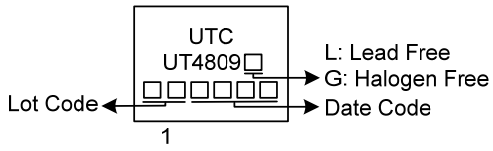
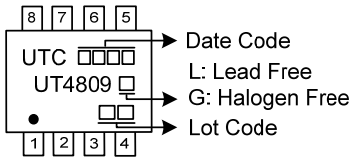
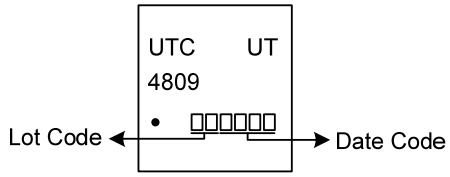
Ordering Number		Package	Pin Assignment								Packing
Lead Free	Halogen Free		1	2	3	4	5	6	7	8	
UT4809L-TN3-R	UT4809G-TN3-R	TO-252	G	D	S	-	-	-	-	-	Tape Reel
UT4809L-S08-R	UT4809G-S08-R	SOP-8	S	S	S	G	D	D	D	D	Tape Reel
UT4809L-P5060-R	UT4809G-P5060-R	PDFN5×6	S	S	S	G	D	D	D	D	Tape Reel

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

UT4809G-TN3-R (1)Packing Type (2)Package Type (3)Green Package	(1) R: Tape Reel (2) TN3: TO-252, S08: SOP-8, P5060: PDFN5×6 (3) G: Halogen Free and Lead Free, L: Lead Free

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■ MARKING

TO-252	SOP-8
	
PDFN5×6	-
	-

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

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V_{DSS}	30	V
Gate-Source Voltage		V_{GSS}	±20	V
Drain Current	DC	I_D	30	A
	Pulsed (Note 2)	I_{DM}	90	A
Avalanche Energy	Single Pulsed (Note 3)	E_{AS}	117	mJ
Peak Diode Recovery dv/dt (Note 4)		dv/dt	0.43	V/ns
Power Dissipation	TO-252	P_D	48	W
	SOP-8		2	W
	PDFN5×6		35	W
Junction Temperature		T_J	+150	°C
Storage Temperature Range		T_{STG}	-55 ~ +150	°C

Notes: 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. Repetitive Rating: Pulse width limited by maximum junction temperature.
3. L = 1mH, I_{AS} = 15.3A, V_{DD} = 24V, R_G = 25Ω, Starting T_J = 25°C.
4. I_{SD} ≤ 7.0A, di/dt ≤ 200A/μs, V_{DD} ≤ BV_{DSS}, Starting T_J = 25°C.

■ THERMAL DATA

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	TO-252	θ_{JA}	50	°C/W
	SOP-8		90	°C/W
	PDFN5×6		65	°C/W
Junction to Case	TO-252	θ_{JC}	2.6	°C/W
	SOP-8		62.5	°C/W
	PDFN5×6		3.5	°C/W

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

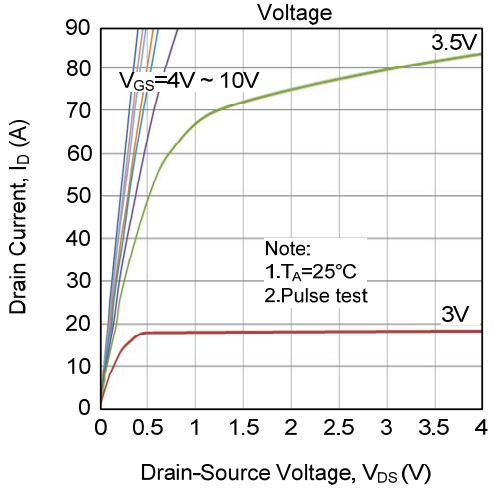
■ ELECTRICAL CHARACTERISTICS (T_J =25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0 V, I_D=250μA	30			V
Drain-Source Leakage Current	I_{DSS}	V_{DS}=30V, V_{GS}=0V			1	μA
Gate-Source Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS}=20V			+100	nA
		V_{DS}=0V, V_{GS}=-20V			-100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	V_{DS}=V_{GS}, I_D=250μA	1.0		2.5	V
Static Drain-Source On-Resistance (Note 2)	$R_{DS(ON)}$	V_{GS}=10V, I_D=30A		4.4	5.3	mΩ
		V_{GS}=10V, I_D=15A		4.3		mΩ
		V_{GS}=4.5V, I_D=30A		6.2	7.8	mΩ
		V_{GS}=4.5V, I_D=15A		6.0		mΩ
DYNAMIC PARAMETERS						
Input Capacitance	C_{ISS}	V_{DS}=15V, V_{GS}=0V, f=1MHz		2434		pF
Output Capacitance	C_{OSS}			597		pF
Reverse Transfer Capacitance	C_{RSS}			512		pF
SWITCHING PARAMETERS						
Gate Charge	Q_G	V_{DS}=24V, V_{GS}=10V, I_D=30A		91		nC
Gate-Source Charge	Q_{GS}			17		nC
Gate-Drain Charge	Q_{GD}			26		nC
Turn-ON Delay Time	$t_{D(ON)}$	V_{GS}=10V, V_{DS}=15V, I_D=30A, R_G=3.0Ω		18		ns
Turn-ON Rise Time	t_R			22		ns
Turn-OFF Delay Time	$t_{D(OFF)}$			58		ns
Turn-OFF Fall-Time	t_F			24		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Source Current (Body Diode)	I_S				30	A
Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=30A			1.2	V
Reverse Recovery Time	t_{rr}	V_{GS}=0V, I_S=30A, d_{Is}/d_t=100A/s		240		ns
Reverse Recovery Time	Q_{rr}			650		nC

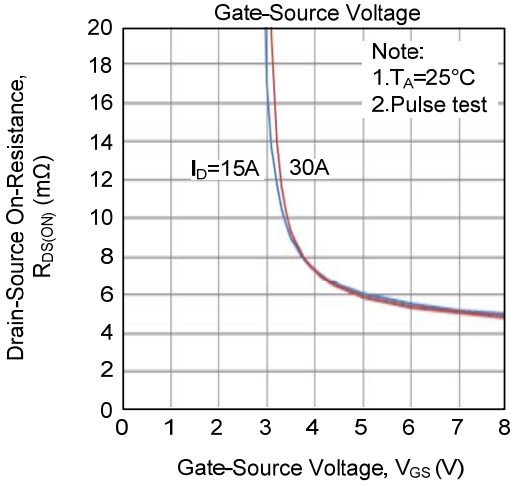
Notes: 1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.

■ TYPICAL CHARACTERISTICS

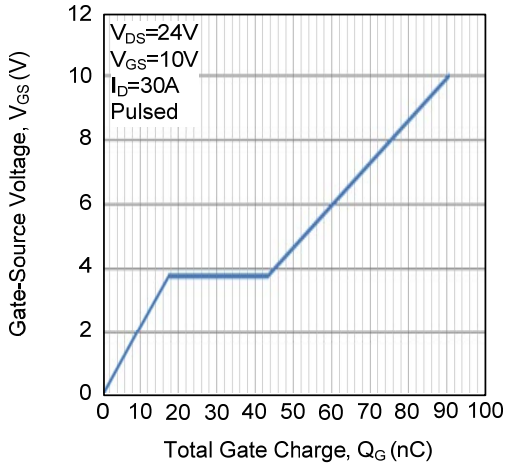
Drain Current vs. Drain-Source Voltage



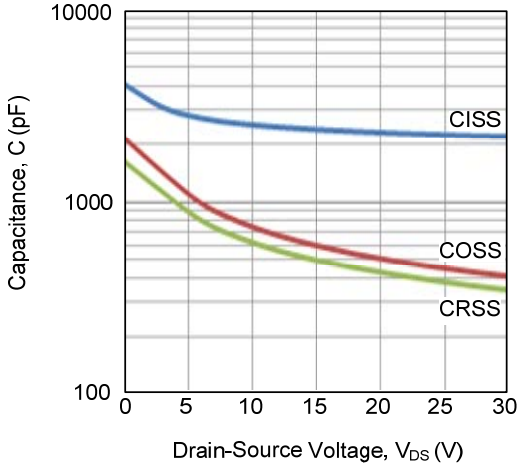
Drain-Source On-Resistance vs. Gate-Source Voltage



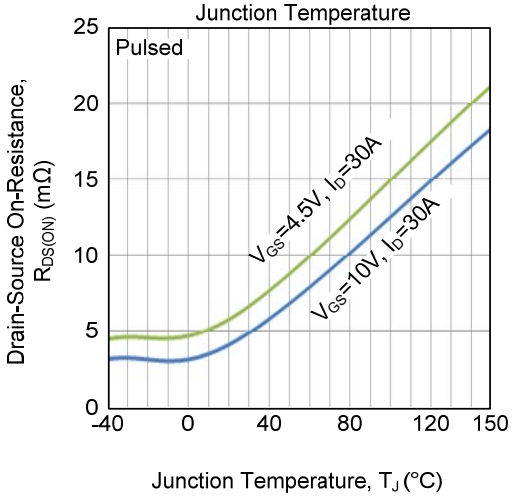
Gate Charge Characteristics



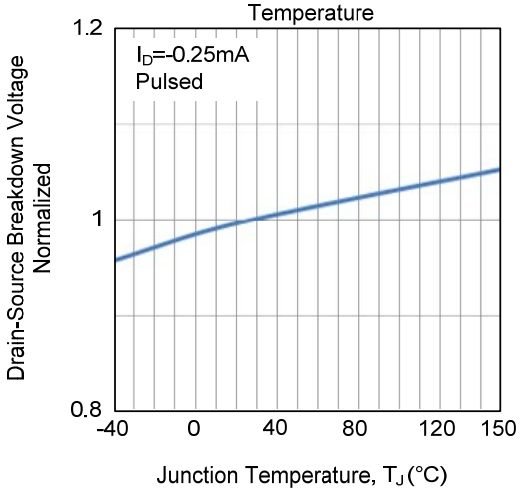
Capacitance Characteristics



Drain-Source On-Resistance vs. Junction Temperature

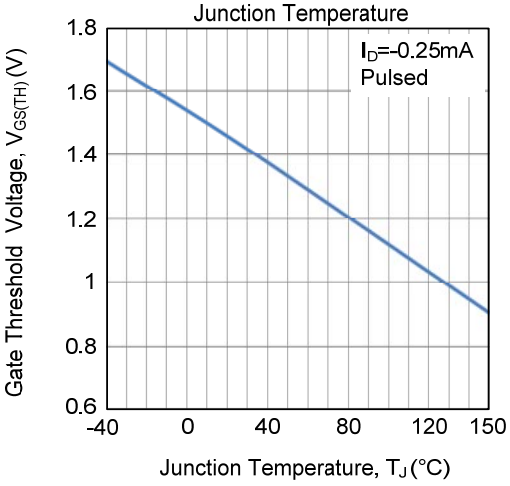


Breakdown Voltage vs. Junction Temperature

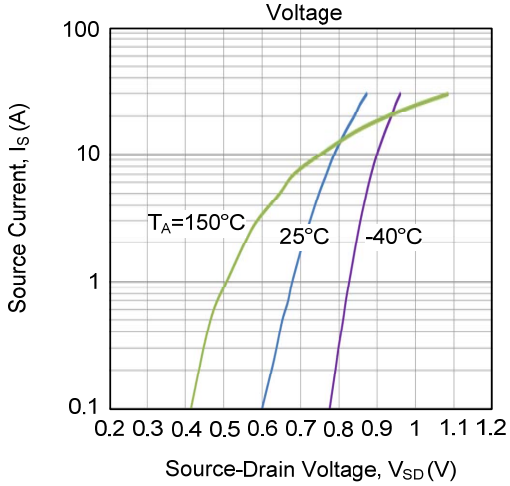


■ TYPICAL CHARACTERISTICS (Cont.)

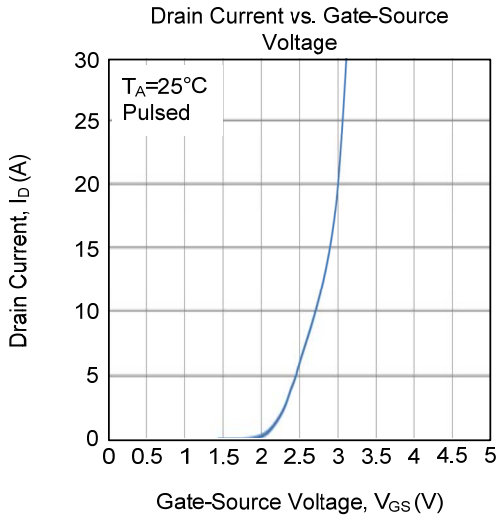
Gate Threshold Voltage vs. Junction Temperature



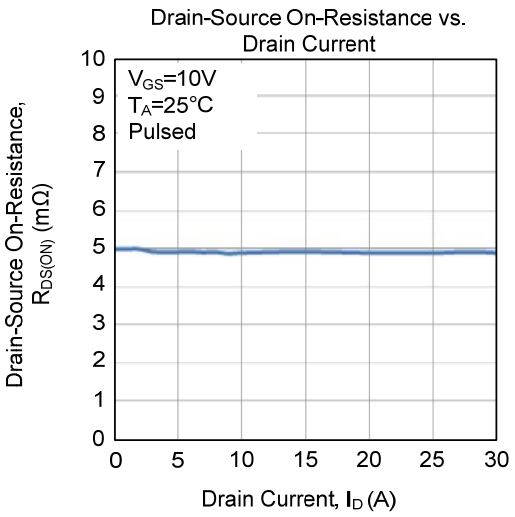
Source Current vs. Source-Drain Voltage



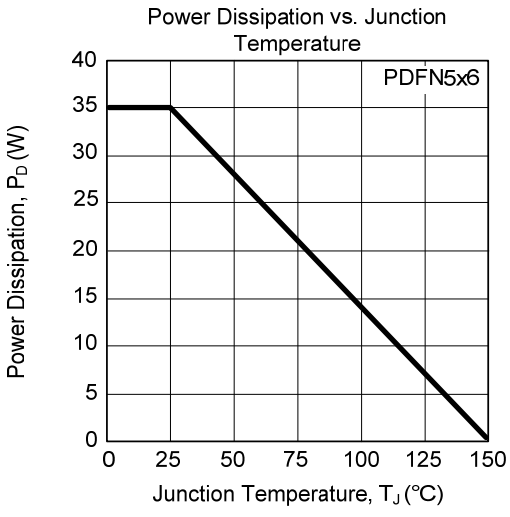
Drain Current vs. Gate-Source Voltage



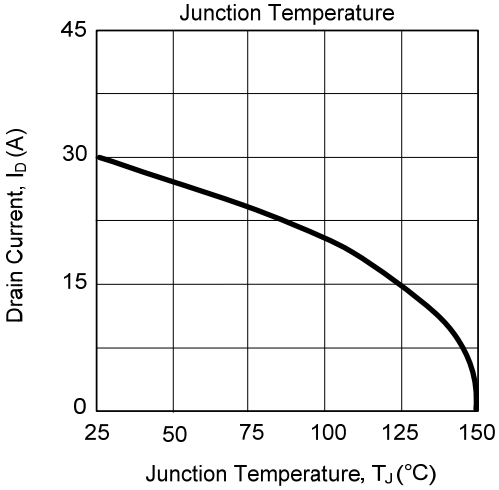
Drain-Source On-Resistance vs. Drain Current



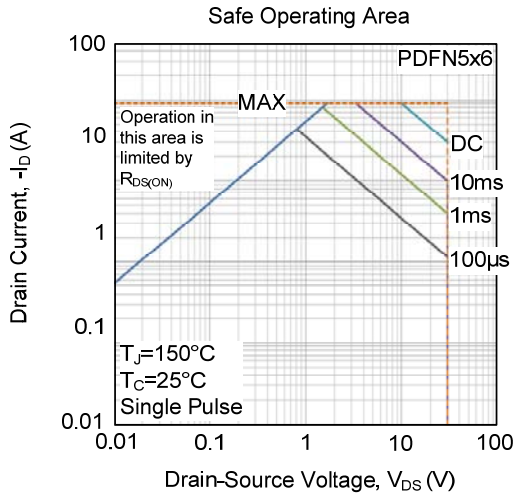
Power Dissipation vs. Junction Temperature



Drain Current vs. Junction Temperature



■ TYPICAL CHARACTERISTICS (Cont.)



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