



UT3NN10

Power MOSFET

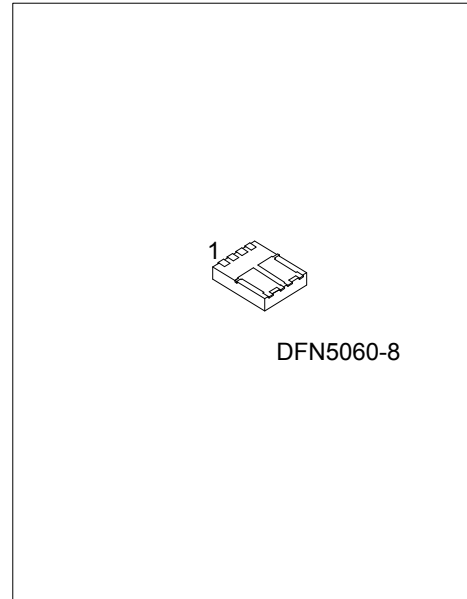
3A, 100V DUAL N-CHANNEL ENHANCEMENT MODE POWER MOSFET

■ DESCRIPTION

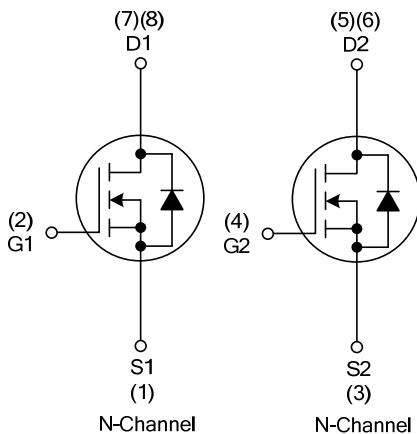
The UTC **UT3NN10** is a dual N-Channel enhancement mode power MOSFET, it provides designer with fast switching speed, ruggedized device design, low on-resistance and cost-effectiveness.

■ FEATURES

- * $R_{DS(ON)} \leq 0.15\Omega @ V_{GS}=10V, I_D=3.0A$
- * $R_{DS(ON)} \leq 0.17\Omega @ V_{GS}=4.5V, I_D=1.0A$
- * Fast Switching Speed
- * Simple Drive Requirement



■ SYMBOL



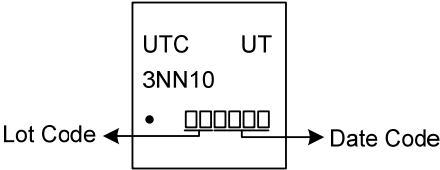
■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment						Packing
Lead Free	Halogen Free		1	2	3	4	5, 6	7, 8	
UT3NN10L-K08-5060-R	UT3NN10G-K08-5060-R	DFN5060-8	S1	G1	S2	G2	D2	D1	Tape Reel

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

<p>UT3NN10G-K08-5060-R</p> <p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Green Package</p>	<p>(1) R: Tape Reel</p> <p>(2) K08-5060: DFN5060-8</p> <p>(3) G: Halogen Free and Lead Free, L: Lead Free</p>
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MARKING



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

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V _{DSS}	100	V
Gate-Source Voltage	V _{GSS}	±20	V
Drain Current	Continuous(Note 3)	I _D	3
	Pulsed(Note 2)	I _{DM}	6
Avalanche Energy	Single Pulsed (Note 3)	E _{AS}	21
Peak Diode Recovery dv/dt (Note 4)	dv/dt	3	V/ns
Power Dissipation	P _D	3.6	W
Junction Temperature	T _J	+150	°C
Storage Temperature	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 = 0.1mH, I_{AS} = 20.5A, V_{DD} = 25V, R_G = 25 Ω Starting T_J = 25°C

4. I_{SD} ≤ 3.0A, di/dt ≤ 200A/μs, V_{DD} ≤ BV_{DSS}, Starting T_J = 25°C

■ THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ _{JA}	35	°C/W

Note: Device mounted on FR-4 substrate P_c board, 2oz copper, with 1inch square copper plate.

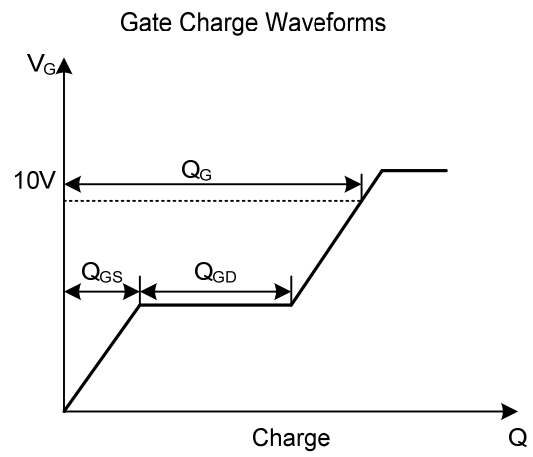
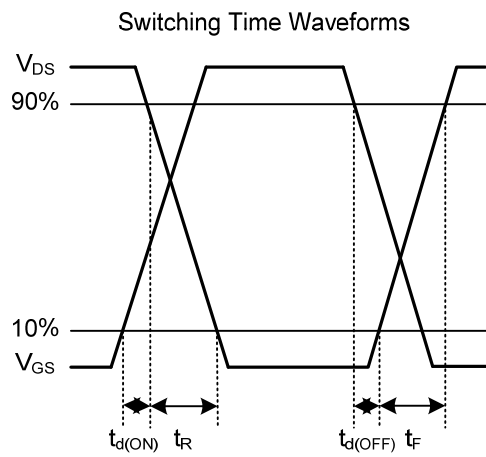
■ ELECTRICAL CHARACTERISTICS (T_J=25°C, unless otherwise specified)

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT	
OFF CHARACTERISTICS								
Drain-Source Breakdown Voltage		BV _{DSS}	V _{GS} =0V, I _D =250μA	100			V	
Drain-Source Leakage Current		I _{DSS}	V _{DS} =100V, V _{GS} =0V			1	μA	
Gate-Source Leakage Current	Forward	I _{GSS}	V _{DS} =0V, V _{GS} =20V			100	nA	
	Reverse		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		3.0	V	
Drain-Source On-State Resistance (Note 1)		R _{DS(ON)}	V _{GS} =10V, I _D =3.0A			0.15	Ω	
			V _{GS} =4.5V, I _D =1.0A			0.17	Ω	
DYNAMIC PARAMETERS								
Input Capacitance		C _{ISS}	V _{DS} =25V, V _{GS} =0V, f=1.0MHz		730		pF	
Output Capacitance		C _{OSS}				46		pF
Reverse Transfer Capacitance		C _{RSS}				36		pF
SWITCHING PARAMETERS								
Total Gate Charge (Note 1)	10V	Q _G	V _{DS} =80V, V _{GS} =10V, I _D =3A I _G =1mA (Note 1, 2)		11		nC	
	4.5V				7.3		nC	
Gate-Source Charge		Q _{GS}			2.6		nC	
Gate-Drain Charge		Q _{GD}			4		nC	
Turn-ON Delay Time (Note 1)		t _{D(ON)}			5.6		ns	
Turn-ON Rise Time		t _R		V _{DS} =80V, V _{GS} =10V, I _D =3A, R _G =25Ω (Note 1, 2)		16		ns
Turn-OFF Delay Time		t _{D(OFF)}			85		ns	
Turn-OFF Fall Time		t _F			35		ns	
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS								
Maximum Continuous Drain-Source Diode Forward Current		I _S				3	A	
Maximum Pulsed Drain-Source Diode Forward Current		I _{SM}				6	A	
Drain-Source Diode Forward Voltage (Note 1)		V _{SD}	I _S =1.2A, V _{GS} =0V			1.2	V	
Body Diode Reverse Recovery Time (Note 1)		t _{rr}	V _{GS} =0V, I _S =3A,		70		ns	
Body Diode Reverse Recovery Charge		Q _{rr}	di _F /dt=100A/μs		87		nC	

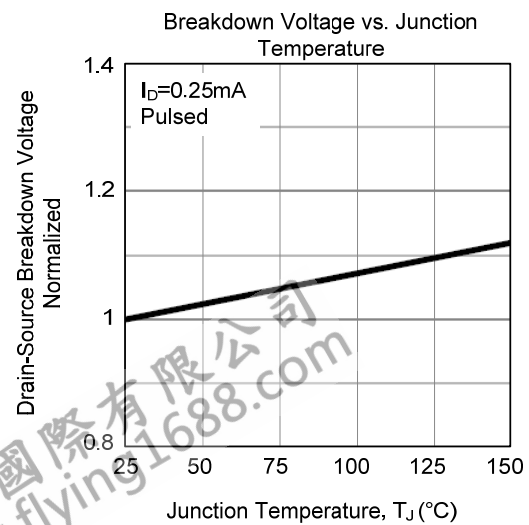
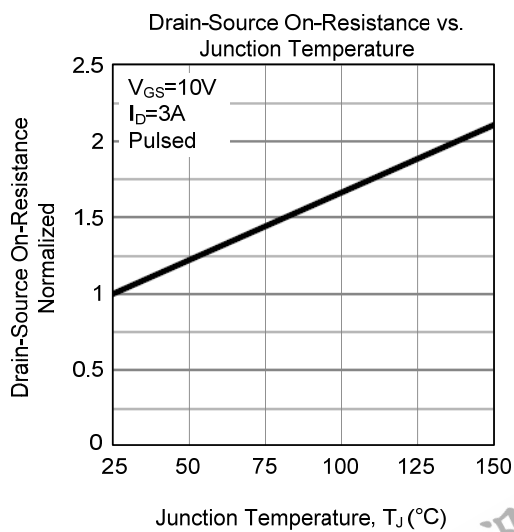
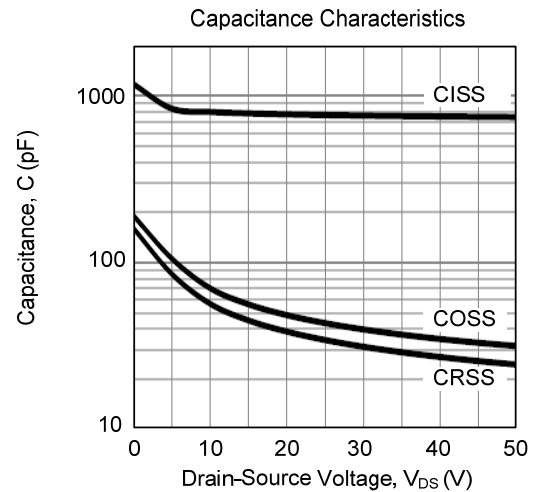
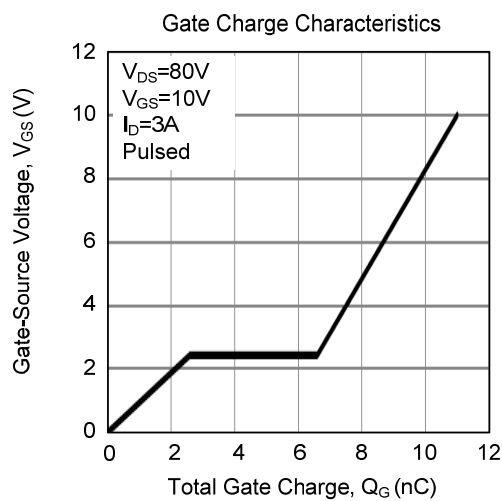
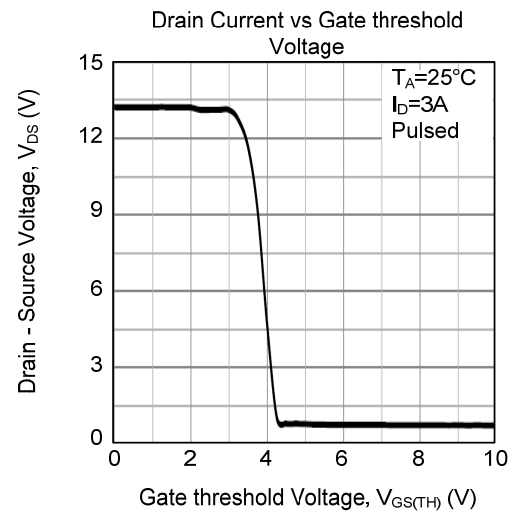
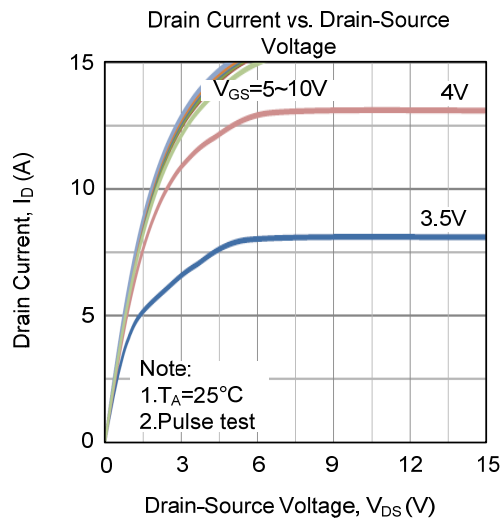
Notes: 1. Pulse Test : Pulse width ≤ 300μs, Duty cycle ≤ 2%.

2. Essentially independent of operating temperature.

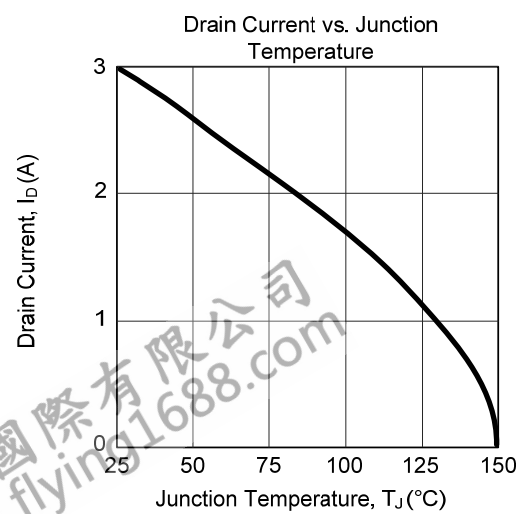
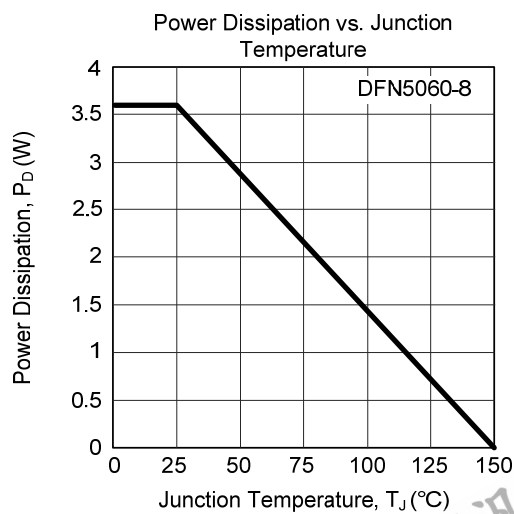
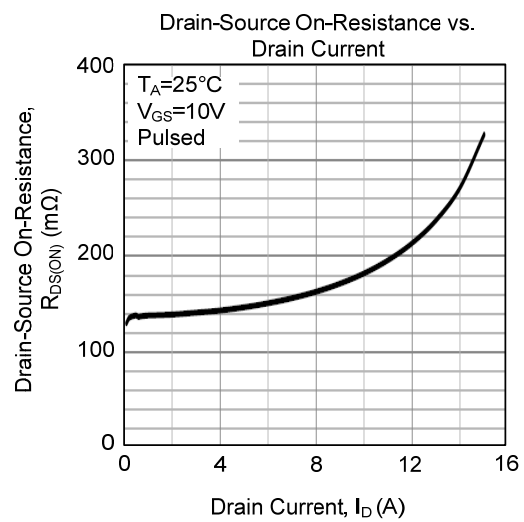
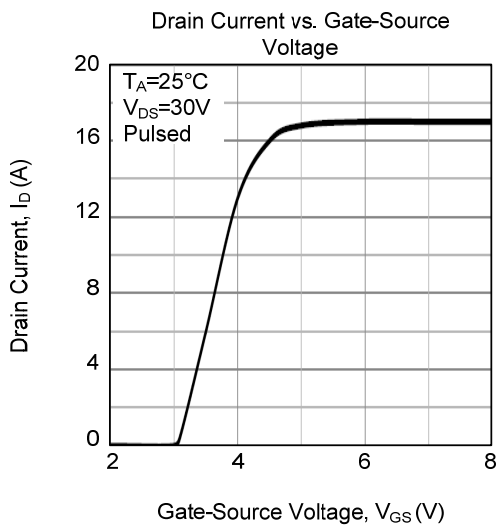
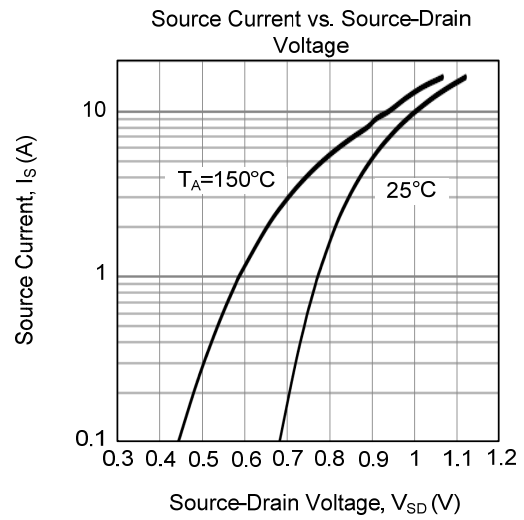
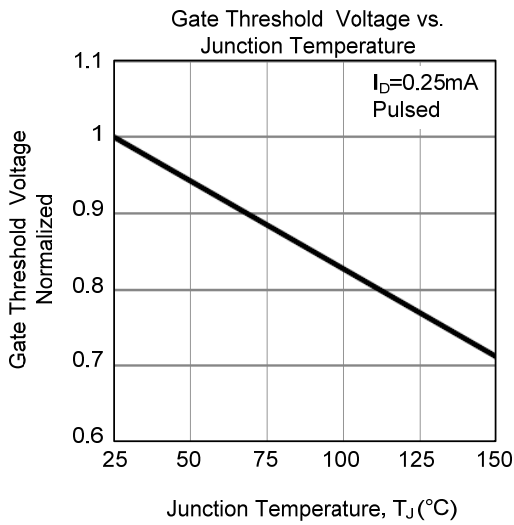
■ TEST CIRCUITS AND WAVEFORMS



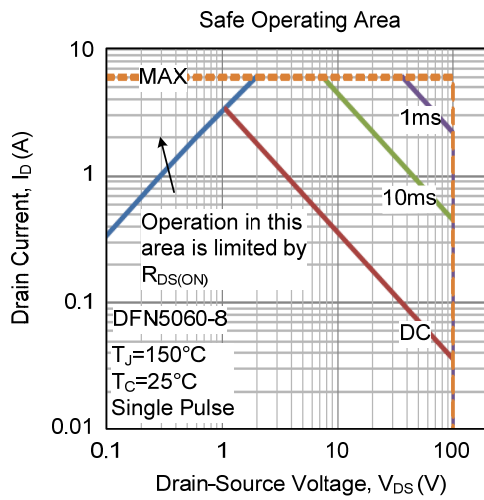
TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS (Cont.)



■ TYPICAL CHARACTERISTICS (Cont.)



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