



10NN15

Power MOSFET

DUAL N-CHANNEL ENHANCEMENT MODE POWER MOSFET

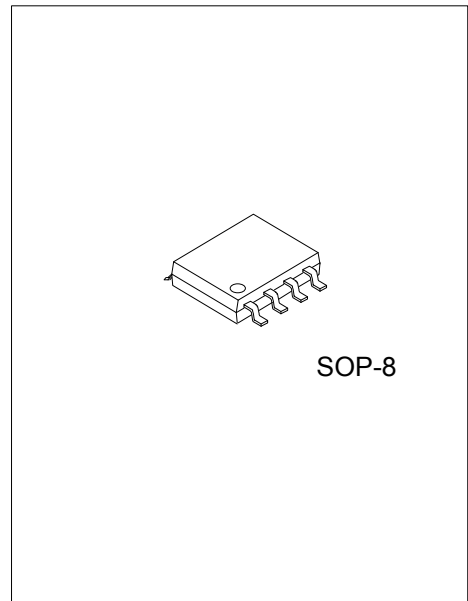
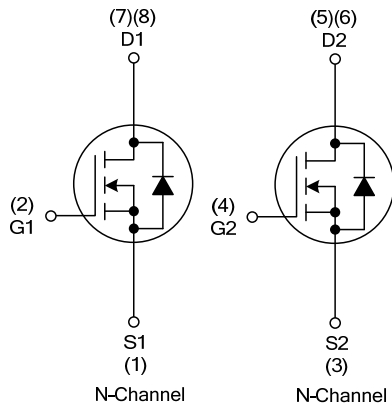
DESCRIPTION

The UTC **10NN15** is a Dual N-channel enhancement mode power MOSFET using UTC's perfect technology to provide customers with fast switching, ruggedized device design, low on-resistance and cost-effectiveness.

FEATURES

- * High switching speed
- * Low Gate Charge
- * Simple Drive Requirement

SYMBOL



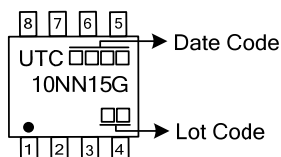
ORDERING INFORMATION

Ordering Number	Package	Pin Assignment						Packing
		1	2	3	4	5, 6	7, 8	
10NN15G-S08-R	SOP-8	S1	G1	S2	G2	D2	D1	Tape Reel

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

<p>10NN15G-S08-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) S08: SOP-8</p> <p>(3) G: Halogen Free and Lead Free</p>
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MARKING



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

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V_{DSS}	150	V
Gate-Source Voltage		V_{GSS}	± 20	V
Drain Current	Continuous (Note 3)	I_D	3	A
	Pulsed (Note 2)	I_{DM}	12	A
Power Dissipation		P_D	2	W
Junction Temperature		T_J	+150	$^\circ\text{C}$
Storage Temperature		T_{STG}	-55~+150	$^\circ\text{C}$

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. Pulse width limited by Max. junction temperature.

3. Surface mounted on 1in2 copper pad of FR4 board, $t \leq 10\text{sec}$; 135°C/W when mounted on Min. copper pad.

■ THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient (Note 3)	θ_{JA}	62.5	$^\circ\text{C/W}$

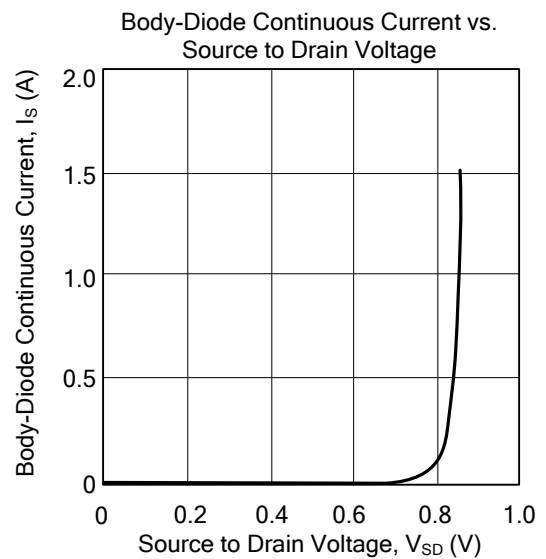
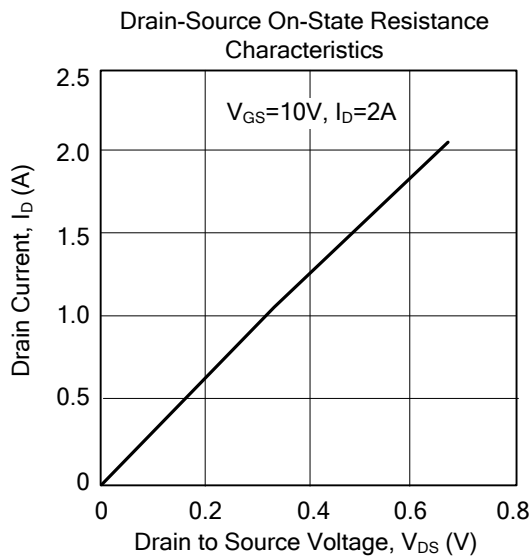
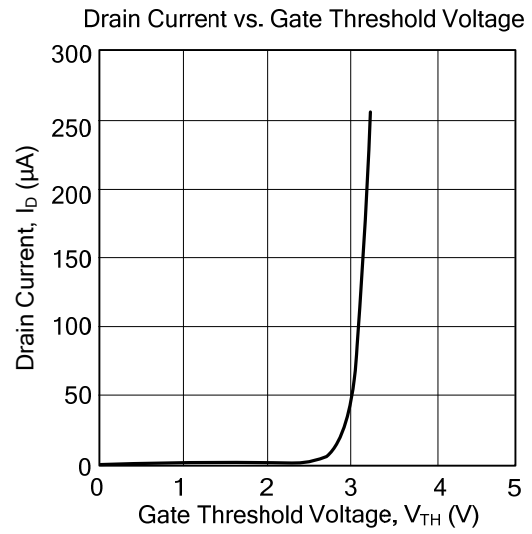
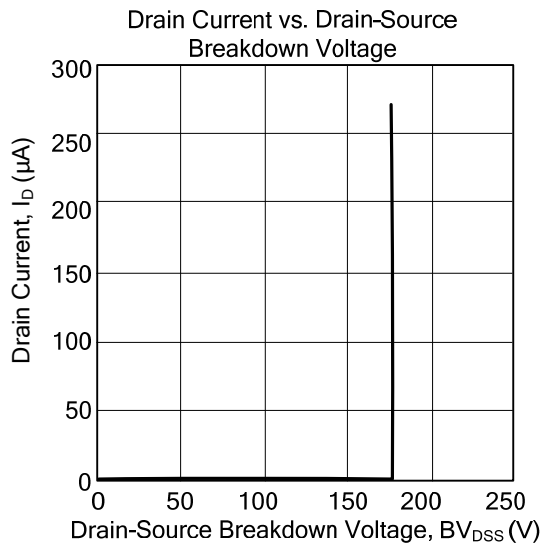
■ ELECTRICAL CHARACTERISTICS ($T_J=25^\circ\text{C}$, unless otherwise specified)

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT	
OFF CHARACTERISTICS								
Drain-Source Breakdown Voltage		BV_{DSS}	$I_D=250\mu\text{A}$, $V_{GS}=0\text{V}$	150			V	
Drain-Source Leakage Current		I_{DSS}	$V_{DS}=150\text{V}$, $V_{GS}=0\text{V}$			10	μA	
Gate- Source Leakage Current	Forward	I_{GSS}	$V_{GS}=+20\text{V}$, $V_{DS}=0\text{V}$			+100	nA	
	Reverse		$V_{GS}=-20\text{V}$, $V_{DS}=0\text{V}$			-100	nA	
ON CHARACTERISTICS								
Gate Threshold Voltage		$V_{GS(TH)}$	$V_{DS}=V_{GS}$, $I_D=250\mu\text{A}$	2		4	V	
Static Drain-Source On-State Resistance		$R_{DS(ON)}$	$V_{GS}=10\text{V}$, $I_D=3\text{A}$			400	m Ω	
DYNAMIC PARAMETERS								
Input Capacitance		C_{ISS}	$V_{GS}=0\text{V}$, $V_{DS}=25\text{V}$, $f=1.0\text{MHz}$		420	672	pF	
Output Capacitance		C_{OSS}				60		pF
Reverse Transfer Capacitance		C_{RSS}				40		pF
SWITCHING PARAMETERS								
Total Gate Charge		Q_G	$V_{GS}=10\text{V}$, $V_{DS}=120\text{V}$, $I_D=3\text{A}$ (Note 1, 2)		10	16	nC	
Gate to Source Charge		Q_{GS}				2		nC
Gate to Drain Charge		Q_{GD}				4		nC
Turn-ON Delay Time		$t_{D(ON)}$	$V_{DS}=75\text{V}$, $V_{GS}=10\text{V}$, $I_D=3\text{A}$, $R_G=3.3\Omega$ (Note 1, 2)		6.5		ns	
Rise Time		t_R				7		ns
Turn-OFF Delay Time		$t_{D(OFF)}$				14		ns
Fall-Time		t_F				35		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS								
Drain-Source Diode Forward Voltage		V_{SD}	$I_S=3\text{A}$, $V_{GS}=0\text{V}$			1.3	V	
Body Diode Reverse Recovery Time		t_{RR}	$I_S=3\text{A}$, $V_{GS}=0\text{V}$, $dI_F/dt=100\text{A}/\mu\text{s}$			40	ns	
Body Diode Reverse Recovery Charge		Q_{RR}				75		μC

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

2. Essentially independent of operating temperature

■ TYPICAL CHARACTERISTICS



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