

**15N25**

Preliminary

Power MOSFET

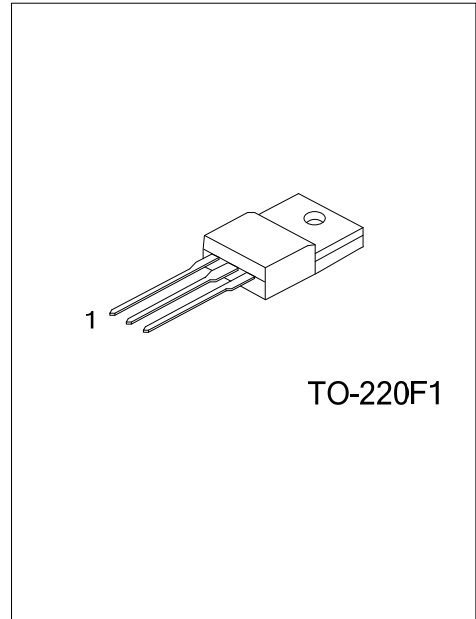
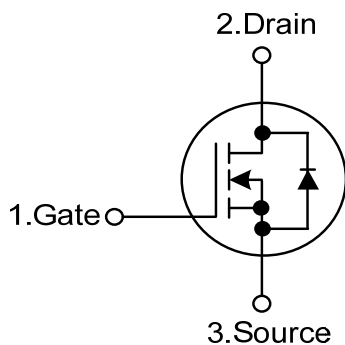
**15A, 250V N-CHANNEL
POWER MOSFET****DESCRIPTION**

The UTC **15N25** is an N-channel enhancement MOSFET using UTC's advanced technology to provide the customers with perfect $R_{DS(ON)}$, high switching speed, high current capacity and low gate charge.

The UTC **15N25** is universally applied in low voltage such as automotive, high efficiency switching for DC/DC converters and DC motor control, etc.

FEATURES

- * $R_{DS(ON)} < 0.32\Omega$ @ $V_{GS}=10V$, $I_D=7.5A$
- * Low Gate Charge (Typical 20nC)
- * Low C_{RSS} (Typical 25pF)
- * High Switching Speed

SYMBOL**ORDERING INFORMATION**

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
15N25L-TF1-T	15N25G-TF1-T	TO-220F1	G	D	S	Tube

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

15N25L-TF1-T (1) Packing Type (2) Package Type (3) Lead Free	(1) T: Tube, R: Tape Reel (2) TF1: TO-220F1 (3) L: Lead Free, G: Halogen Free
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■ **ABSOLUTE MAXIMUM RATINGS** (unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V_{DSS}	250	V
Gate-Source Voltage		V_{GSS}	± 30	V
Continuous Drain Current	Continuous	I_D	15	A
	Pulsed	I_{DM}	60	A
Single Pulsed Avalanche Current		I_{AS}	15	A
Single Pulsed Avalanche Energy		E_{AS}	340	mJ
Power Dissipation		P_D	83	W
Junction Temperature		T_J	+150	°C
Storage Temperature		T_{STG}	-55 ~ +150	°C

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	RATINGS	UNIT
Junction to Ambient	θ_{JA}	110	°C/W
Junction to Case	θ_{JC}	1.5	°C/W

■ **ELECTRICAL CHARACTERISTICS**

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage		BV _{DSS}	I _D =250μA, V _{GS} =0V	250			V
Drain-Source Leakage Current		I _{DSS}	V _{DS} =250V, V _{GS} =0V			1	μA
Gate-Source Leakage Current	Forward	I _{GSS}	V _{GS} =+30V, V _{DS} =0V			+100	nA
	Reverse		V _{GS} =-30V, V _{DS} =0V			-100	nA
ON CHARACTERISTICS							
Gate Threshold Voltage		V _{GS(TH)}	V _{DS} =V _{GS} , I _D =250μA	2		4	V
Static Drain-Source On-State Resistance		R _{DS(ON)}	V _{GS} =10V, I _D =7.5A		0.29	0.32	Ω
DYNAMIC PARAMETERS							
Input Capacitance		C _{ISS}	V _{GS} =0V, V _{DS} =25V, f=1.0MHz		830	1080	pF
Output Capacitance		C _{OSS}			200	260	pF
Reverse Transfer Capacitance		C _{RSS}			25	33	pF
SWITCHING PARAMETERS							
Total Gate Charge		Q _G	V _{GS} =10V, V _{DD} =50V, I _D =1.3A		67	75	nC
Gate to Source Charge		Q _{GS}			15		nC
Gate to Drain Charge		Q _{GD}			18		nC
Turn-ON Delay Time		t _{D(ON)}	V _{DD} =30V, I _D =0.5A, R _G =25Ω, V _{GS} =10V, R _L =30 Ω		40	50	ns
Rise Time		t _R			50	60	ns
Turn-OFF Delay Time		t _{D(OFF)}			130	140	ns
Fall-Time		t _F			50	65	ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS							
Maximum Body-Diode Continuous Current		I _S				15	A
Maximum Body-Diode Pulsed Current		I _{SM}				60	A
Drain-Source Diode Forward Voltage		V _{SD}	I _S =15A, V _{GS} =0V			1.5	V

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