



N-CHANNEL ENHANCEMENT MODE POWER MOSFET

DESCRIPTION

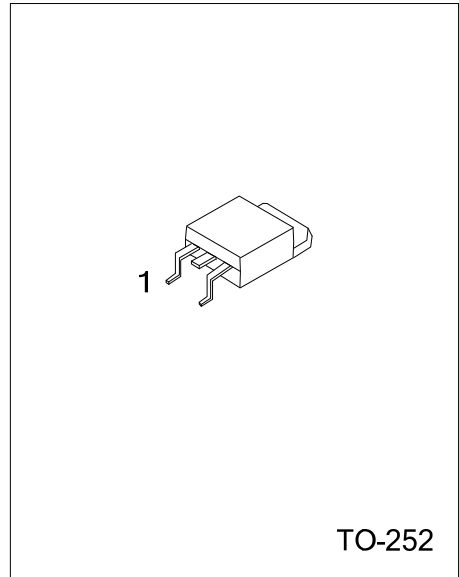
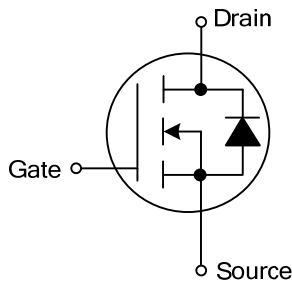
The UTC **25N10** is an N-channel enhancement mode power MOSFET and it uses UTC's perfect technology to provide designers with fast switching, ruggedized device design, low on-resistance and cost-effectiveness.

It is generally suitable for all commercial-industrial applications and DC/DC converters requiring low voltage.

FEATURES

- * Single Drive Requirement
- * Low Gate Charge
- * RoHS Compliant

SYMBOL



ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free Plating	Halogen Free		1	2	3	
25N10L-TN3-R	25N10G-TN3-R	TO-252	G	D	S	Tape Reel

<p>25N10G-TN3-R</p> <p>(1)Packing Type</p> <p>(2)Package Type</p> <p>(3)Halogen Free</p>	<p>(1) R: Tape Reel</p> <p>(2) TN3: TO-252</p> <p>(3) G: Halogen Free, L: Lead Free Plating</p>
--	---

■ ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATINGS	UNIT	
Drain Source Voltage	V_{DSS}	100	V	
Gate Source Voltage	V_{GSS}	± 20	V	
Continuous Drain Current ($V_{GS}=10V$)	$T_C=25^\circ C$	I_D	23	A
	$T_C=100^\circ C$	I_D	14.6	A
Pulsed Drain Current (Note 2)	I_{DM}	80	A	
Total Power Dissipation ($T_C=25^\circ C$)	P_D	41	W	
Operating Junction Temperature	T_J	-55 ~ +150	$^\circ C$	
Storage Temperature	T_{STG}	-55 ~ +150	$^\circ C$	

Note: 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

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	100	$^\circ C/W$
Junction to Case	θ_{JC}	3	$^\circ C/W$

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=1mA$	100			V
Breakdown Voltage Temperature Coefficient	$\Delta BV_{DSS}/\Delta T_J$	Reference to $25^\circ C, I_D=1mA$		0.14		$V/^\circ C$
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=100V, V_{GS}=0V, T_J=25^\circ C$			25	μA
		$V_{DS}=80V, V_{GS}=0V, T_J=150^\circ C$			100	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 20V$			± 100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2		4	V
Static Drain-Source On-Resistance (Note)	$R_{DS(ON)}$	$V_{GS}=10V, I_D=16A$			80	m Ω
Forward Transconductance	g_{FS}	$V_{DS}=10V, I_D=16A$		14		S
DYNAMIC PARAMETERS						
Input Capacitance	C_{ISS}	$V_{DS}=25V, V_{GS}=0V, f=1.0MHz$		1060	1700	pF
Output Capacitance	C_{OSS}			270		pF
Reverse Transfer Capacitance	C_{RSS}			8		pF
Gate Resistance	R_G	$f=1.0MHz$		1.5	2.3	Ω
SWITCHING PARAMETERS						
Total Gate Charge (Note)	Q_G	$V_{GS}=10V, V_{DS}=80V, I_D=16A$		19	30	nC
Gate Source Charge	Q_{GS}			5		nC
Gate Drain Charge	Q_{GD}			6		nC
Turn-ON Delay Time ¹	$t_{D(ON)}$	$V_{DD}=50V, I_D=16A, R_G=3.3\Omega, V_{GS}=10V, R_D=3.125\Omega$		10		ns
Turn-ON Rise Time	t_R			28		ns
Turn-OFF Delay Time	$t_{D(OFF)}$			17		ns
Turn-OFF Fall-Time	t_F			2		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Drain-Source Diode Forward Voltage (Note)	V_{SD}	$I_S=16A, V_{GS}=0V$			1.3	V
Reverse Recovery Time	t_{RR}	$I_S=16A, V_{GS}=0V,$		90		ns
Reverse Recovery Charge	Q_{RR}	$dI/dt=100A/\mu s$		380		nC

Note: Pulse Test : Pulse width $\leq 300\mu s$, Duty cycle $\leq 2\%$

UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice.