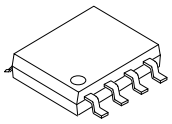
DUAL N-CHANNEL ENHANCEMENT MODE POWER MOSFET



SOP-8

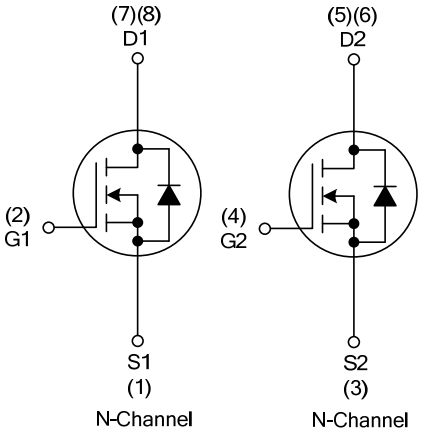
■ DESCRIPTION

The UTC **12NN10** 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

* Low Gate Charge (Typically 10nC)
* 2.5A, 100V, 150mΩ @ V_{GS}=10V
* Fast Switching Speed
* Simple Drive Requirement

■ SYMBOL



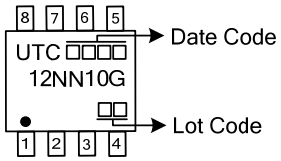
■ ORDERING INFORMATION

Ordering Number	Package	Pin Assignment						Packing
		1	2	3	4	5, 6	7, 8	
12NN10G-S08-R	SOP-8	S1	G1	S2	G2	D2	D1	Tape Reel

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

12NN10G-S08-R (1)Packing Type	(1) R: Tape Reel
(2)Package Type	(2) S08: SOP-8
(3)Green Package	(3) G: Halogen Free and Lead Free

■ MARKING



■ 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	2.5	A
	Pulsed(Note 2)	I_{DM}	10	A
Power Dissipation		P_D	2	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. Pulse width limited by Max. junction temperature.
3. Surface mounted on 1 in^2 copper pad of FR4 board, t <10sec ; 135°C/W when mounted on Min. copper pad.

■ THERMAL DATA

PARAMETER	SYMBOL	RATING	UNIT
Junction to Ambient	θ_{JA}	62.5	°C/W

Note: Surface mounted on 1 in^2 copper pad of FR4 board, t <10sec ; 135°C/W when mounted on Min. copper pad.

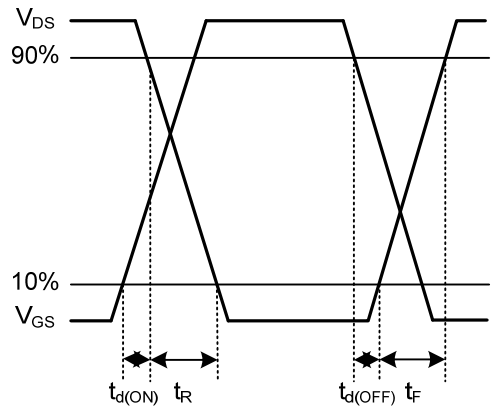
■ ELECTRICAL CHARACTERISTICS (T_J=25°C, unless otherwise specified)

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}=80V, V_{GS}=0V			10	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		3	V
Drain-Source On-State Resistance (Note 1)		$R_{DS(ON)}$	V_{GS}=10V, I_D=2A		0.15	0.18	mΩ
Forward Transconductance		g_{FS}	V_{DS}=10V, I_D=2A		2.8		S
DYNAMIC PARAMETERS							
Input Capacitance		C_{ISS}	V_{DS}=25V,V_{GS}=0V,f=1.0MHz		420	672	pF
Output Capacitance		C_{OSS}			60		pF
Reverse Transfer Capacitance		C_{RSS}			40		pF
SWITCHING PARAMETERS							
Total Gate Charge (Note 1)		Q_G	V_{DS}=80V, V_{GS}=10V, I_D=2A		10	16	nC
Gate-Source Charge		Q_{GS}			2		nC
Gate-Drain Charge		Q_{GD}			4		nC
Turn-ON Delay Time (Note 1)		$t_{D(ON)}$	V_{DS}=50V, I_D=2A, R_G=3.3Ω V_{GS}=10V		6.5		ns
Turn-ON Rise Time		t_R			7		ns
Turn-OFF Delay Time		$t_{D(OFF)}$			14		ns
Turn-OFF Fall Time		t_F			3.5		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS							
Drain-Source Diode Forward Voltage (Note 1)		V_{SD}	I_S =1.5A, V_{GS}=0V			1.3	V
Body Diode Reverse Recovery Time (Note 1)		t_{RR}	V_{GS}=0V, I_S=2A, dI_F/dt=100A/μs		40		ns
Body Diode Reverse Recovery Charge		Q_{RR}			75		nC

Note: Pulse test.

■ TEST CIRCUITS AND WAVEFORMS

Switching Time Waveforms



Gate Charge Waveforms