



DUAL N-CHANNEL ENHANCEMENT MODE POWER MOSFET

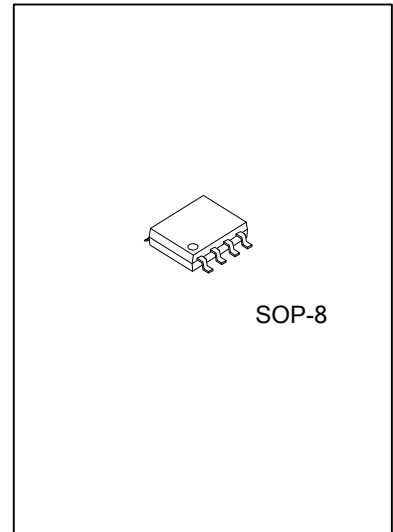
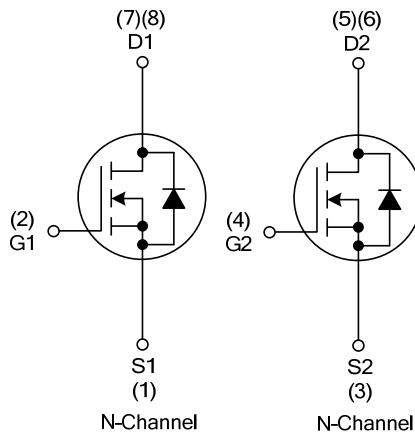
DESCRIPTION

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
Lead Free	Halogen Free		1	2	3	4	5	6	7	8	
12NN10L-S08-R	12NN10G-S08-R	SOP-8	S1	G1	S2	G2	D2	D2	D1	D1	Tape Reel

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

12NN10L - S08 - R		(1) Packing Type	(1) R: Tape Reel
		(2) Package Type	(2) S08: SOP-8
		(3) Lead Free	(3) L: Lead Free, G: Halogen Free

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

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V_{DS}	100	V
Gate-Source Voltage		V_{GS}	± 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	$^{\circ}\text{C}$
Storage Temperature		T_{STG}	-55~+150	$^{\circ}\text{C}$

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.

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

■ THERMAL DATA

PARAMETER	SYMBOL	RATING	UNIT
Junction to Ambient (Note 1)	θ_{JA}	62.5	$^{\circ}\text{C/W}$

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

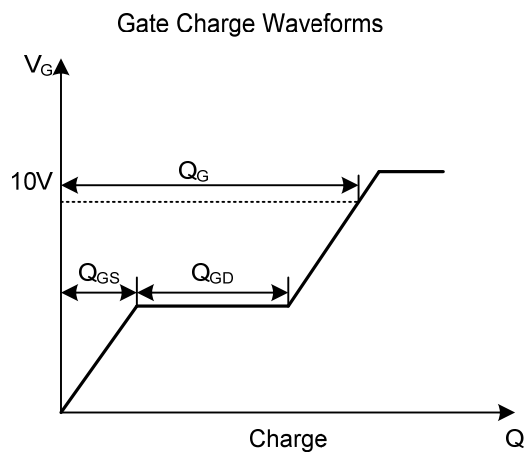
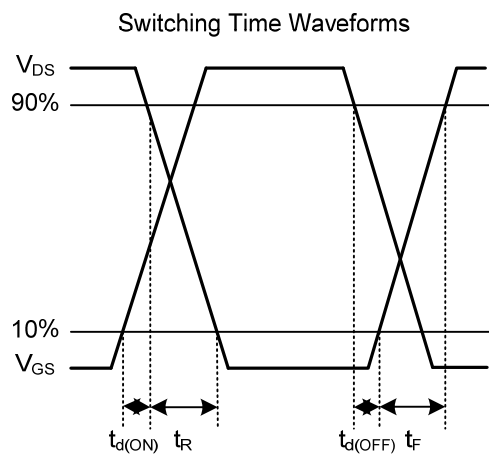
■ ELECTRICAL CHARACTERISTICS ($T_J=25^{\circ}\text{C}$, unless otherwise specified)

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage		BV _{DSS}	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			150	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}	$V_{GS}=0V, I_S=2A,$		40		ns
Body Diode Reverse Recovery Charge	Q_{RR}	$di_F/dt=100A/\mu s$		75		nC

Note: 1. Pulse test

■ TEST CIRCUITS AND WAVEFORMS



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