



12N06Z

Power MOSFET

12A, 60V N-CHANNEL POWER MOSFET

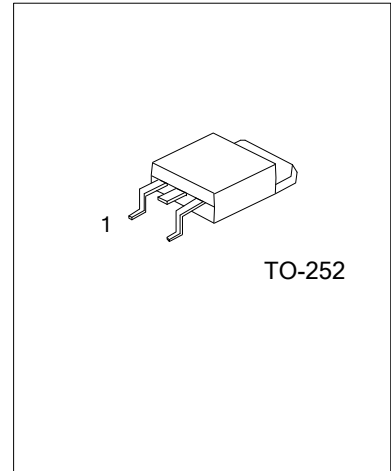
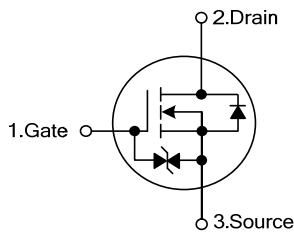
■ DESCRIPTION

The UTC **12N06Z** is an N-channel enhancement mode Power MOSFET using UTC' s advanced technology to provide customers with a minimum on-state resistance, high switching speed and low gate charge.

■ FEATURES

- * 12A, 60V, $R_{DS(on)} < 0.10\Omega @ V_{GS} = 10V$
- * High switching speed
- * Low gate charge
- * Halogen Free

■ SYMBOL



■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
12N06ZL-TN3-R	12N06ZG-TN3-R	TO-252	G	D	S	Tape Reel

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

<p>12N06ZL-TF3-R</p> <p>(1)Packing Type (2)Package Type (3)Lead Free</p>	<p>(1) R: Tape Reel (2) TN3: TO-252 (3) G: Halogen Free, L: Lead Free</p>
--	---

■ ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V_{DSS}	60	V
Gate-Source Voltage		V_{GSS}	± 20	V
Drain Current	Continuous $T_C = 25^\circ\text{C}$	I_D	12	A
	Pulsed	I_{DM}	48	A
Total Dissipation at $T_C = 25^\circ\text{C}$		P_{TOT}	30	W
Peak Diode Recovery dv/dt		dv/dt	15	V/ns
Avalanche Energy		E_{AS}	140	mJ
Junction Temperature		T_J	-55~+175	$^\circ\text{C}$
Storage Temperature Range		T_{STG}	-55~+175	$^\circ\text{C}$

Notes: 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.

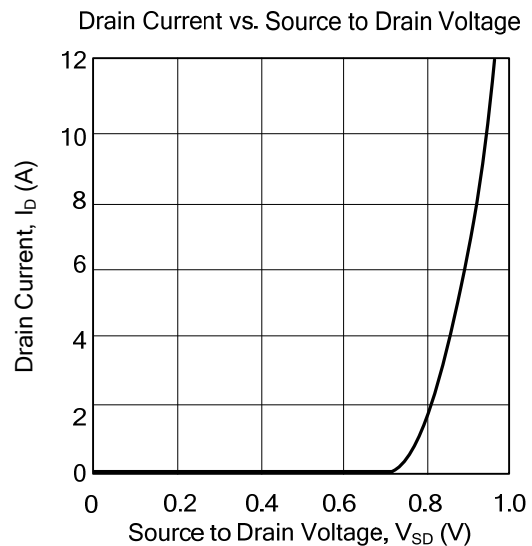
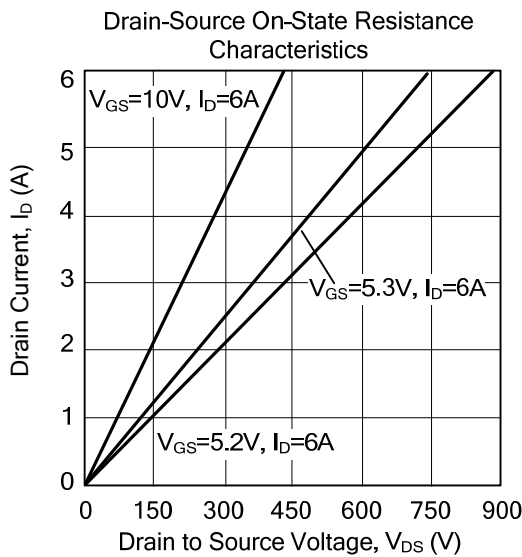
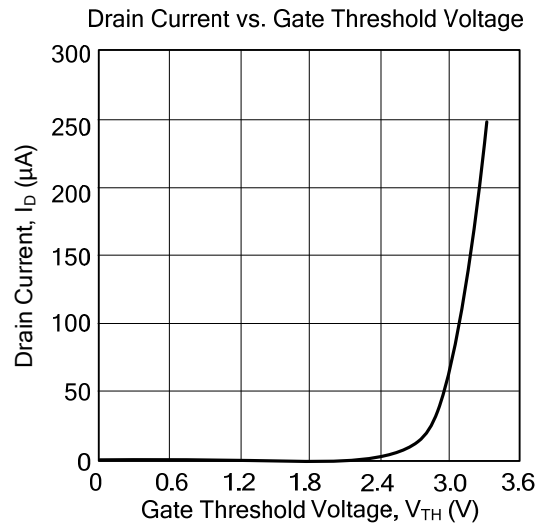
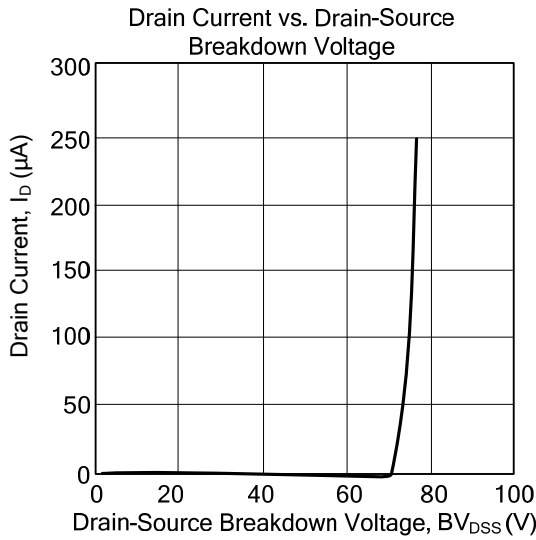
■ THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient Max	θ_{JA}	100	$^\circ\text{C/W}$
Junction to Case Max	θ_{JC}	5	$^\circ\text{C/W}$

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	$I_D=250\ \mu\text{A}$	60			V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=60\text{V}$			1	μA
Gate- Source Leakage Current	I_{GSS}	$V_{GS}=\pm 20\text{V}$			± 10	μA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS}=V_{GS}, I_D=250\ \mu\text{A}$	1		3	V
Static Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{DS}=10\text{V}, I_D=6\text{A}$		0.08	0.1	Ω
On State Drain Current	$I_{D(ON)}$	$V_{GS}=10\text{V}, V_{DS}=1\text{V}$	5		30	A
DYNAMIC PARAMETERS						
Input Capacitance	C_{ISS}	$V_{DS}=25\text{V}, f=1\text{MHz}, V_{GS}=0\text{V}$		350		pF
Output Capacitance	C_{OSS}			75		pF
Reverse Transfer Capacitance	C_{RSS}			30		pF
SWITCHING PARAMETERS						
Total Gate Charge	Q_G	$V_{GS}=5\text{V}, I_D=12\text{A}, V_{DD}=48\text{V}$		7.5	10	nC
Gate to Source Charge	Q_{GS}			2.5		nC
Gate to Drain Charge	Q_{GD}			3.0		nC
Turn-ON Delay Time	$t_{D(ON)}$	$V_{DD}=30\text{V}, I_D=6\text{A}, R_G=4.7\Omega, V_{GS}=0\sim 10\text{V}$		10		ns
Rise Time	t_R			35		ns
Turn-OFF Delay Time	$t_{D(OFF)}$			20		ns
Fall-Time	t_F			13		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Maximum Body-Diode Continuous Current	I_S				12	A
Maximum Body-Diode Pulsed Current	I_{SM}				48	A
Drain-Source Diode Forward Voltage	V_{SD}	$I_S=12\text{A}$			1.5	V

■ TYPICAL CHARACTERISTICS



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.