



UTM3023

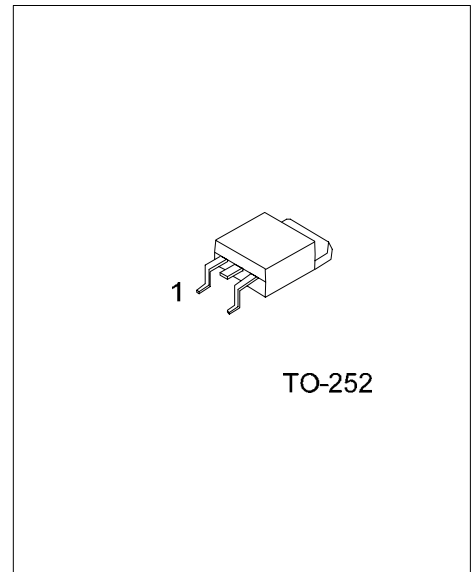
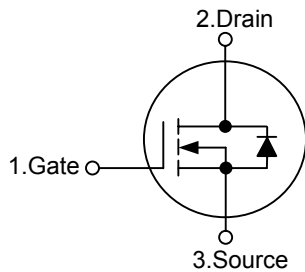
Power MOSFET

N-CHANNEL ENHANCEMENT MODE

■ FEATURES

- * $R_{DS(ON)} = 20m\Omega @ V_{GS} = 10 V$
- * Low capacitance
- * Optimized gate charge
- * Fast switching capability
- * Avalanche energy specified

■ SYMBOL



TO-252

*Pb-free plating product number: UTM3023L

■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Normal	Lead Free Plating		1	2	3	
UTM3023-TN3-R	UTM3023L-TN3-R	TO-252	G	D	S	Tape Reel
UTM3023-TN3-T	UTM3023L-TN3-T	TO-252	G	D	S	Tube

<p>UTM3023L-TN3-R</p> <p>(1)Packing Type</p> <p>(2)Package Type</p> <p>(3)Lead Plating</p>	<p>(1) R: Tape Reel, T: Tube</p> <p>(2) TN3: TO-252</p> <p>(3) L: Lead Free Plating, Blank: Pb/Sn</p>
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■ ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V_{DSS}	30	V
Gate-Source Voltage	V_{GSS}	± 20	
Maximum Continuous Drain Current	I_D	30	A
Maximum Pulsed Drain Current	I_{DM}	70	
Maximum Power Dissipation	P_D	62.5	W
Maximum Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 ~ +150	

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.

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

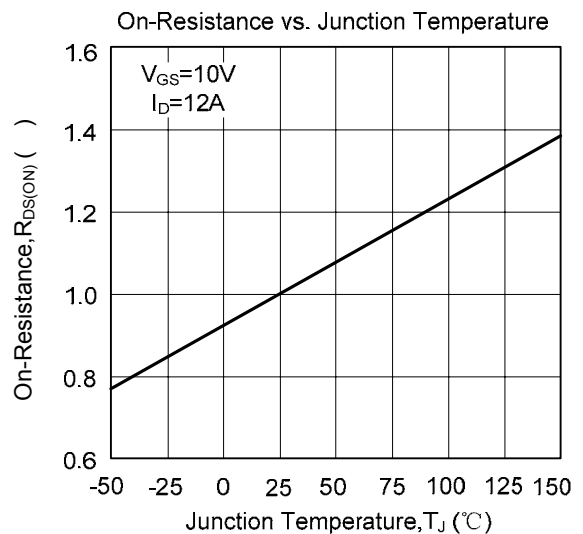
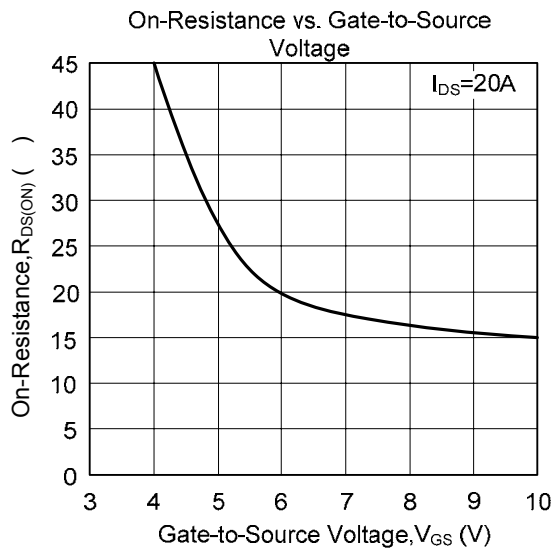
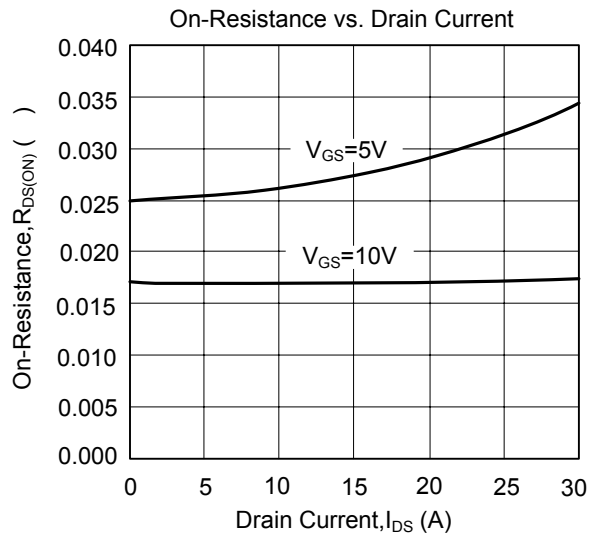
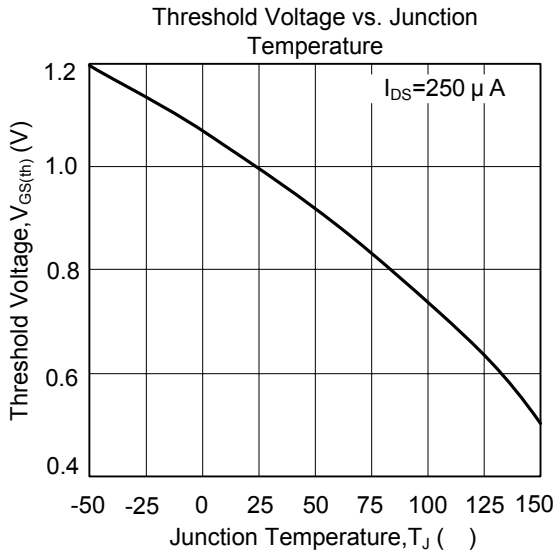
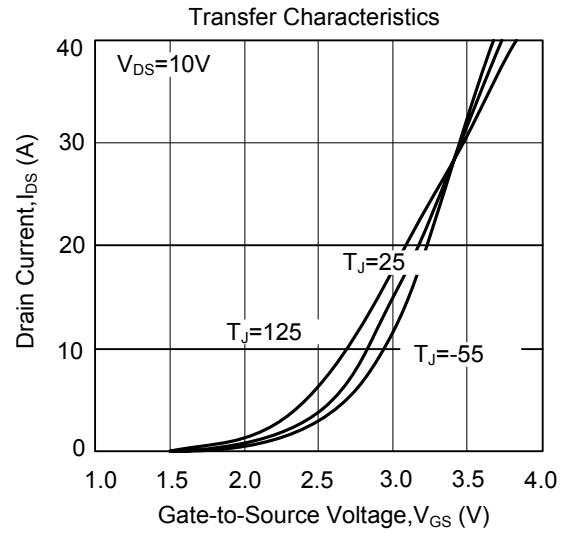
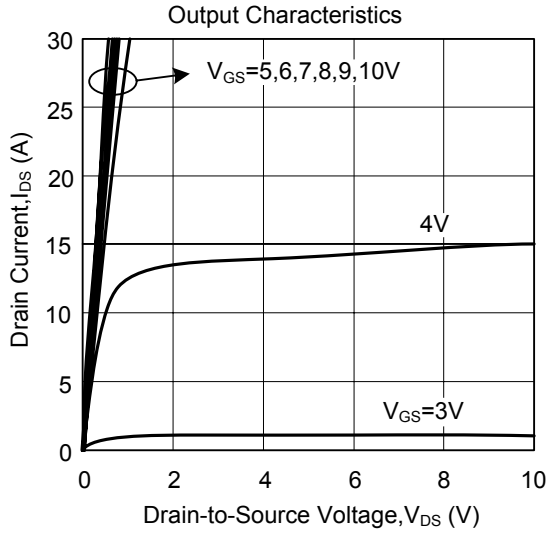
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS} = 0\text{ V}, I_{DS} = 250\mu\text{A}$	30			V
Drain-Source Leakage Current	I_{DSS}	$V_{DS} = 24\text{ V}, V_{GS} = 0\text{ V}$			1	μA
Gate-Source Leakage Current	I_{GSS}	$V_{DS} = 0\text{ V}, V_{GS} = \pm 20\text{V}$			± 100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS} = V_{GS}, I_{DS} = 250\mu\text{A}$	1	1.5	2	V
Drain-Source On-State Resistance(Note 2)	$R_{DS(ON)}$	$V_{GS} = 10\text{ V}, I_{DS} = 20\text{ A}$		15	20	m Ω
		$V_{GS} = 5\text{ V}, I_{DS} = 10\text{ A}$		22	28	
DYNAMIC CHARACTERISTICS						
Input Capacitance	C_{ISS}	$V_{DS} = 15\text{ V}, V_{GS} = 0\text{V}, f = 1.0\text{MHz}$		1200		pF
Output Capacitance	C_{OSS}			220		
Reverse Transfer Capacitance	C_{RSS}			100		
SWITCHING CHARACTERISTICS						
Turn-ON Delay Time (Note 2)	$t_{D(ON)}$	$I_{DS} = 2\text{ A}, V_{DD} = 15\text{ V}, R_G = 6\Omega, V_{GEN} = 10\text{V}$		11	18	ns
Turn-ON Rise Time	t_R			17	26	
Turn-OFF Delay Time	$t_{D(OFF)}$			37	54	
Turn-OFF Fall Time	t_F			20	30	
Total Gate Charge (Note 2)	Q_G	$V_{DS} = 15\text{V}, V_{GS} = 5\text{V}, I_{DS} = 10\text{A}$		15	20	nC
Gate-Source Charge	Q_{GS}			5.8		
Gate-Drain Charge	Q_{GD}			3.8		
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Drain-Source Diode Forward Voltage(Note2)	V_{SD}	$I_{SD} = 15\text{A}, V_{GS} = 0\text{V}$		0.7	1.3	V

Note: 1. Pulse width limited by $T_{J(MAX)}$

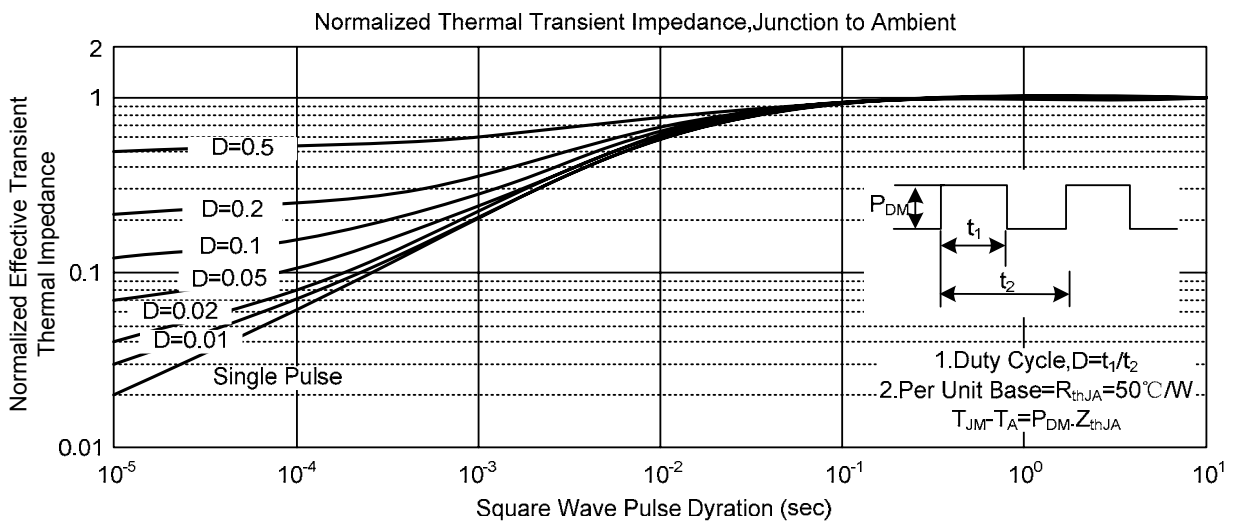
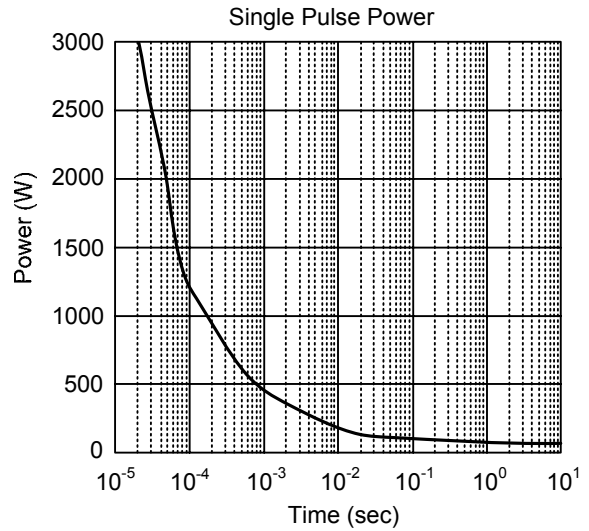
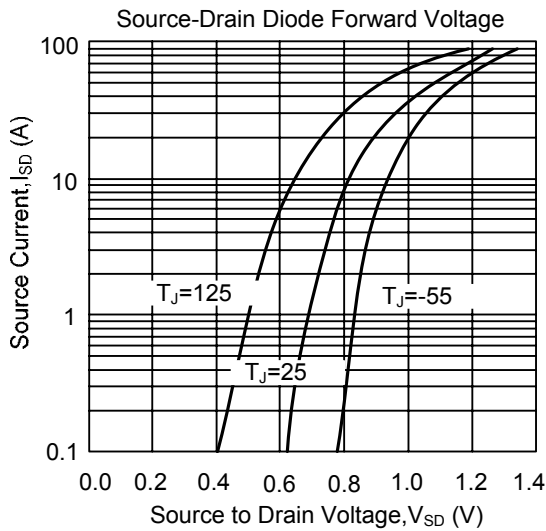
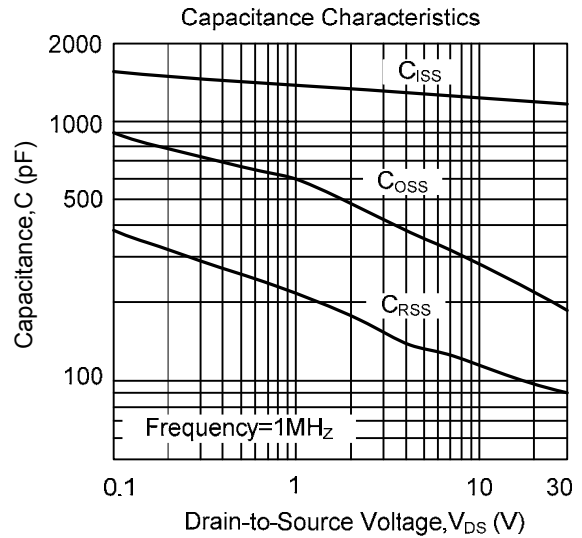
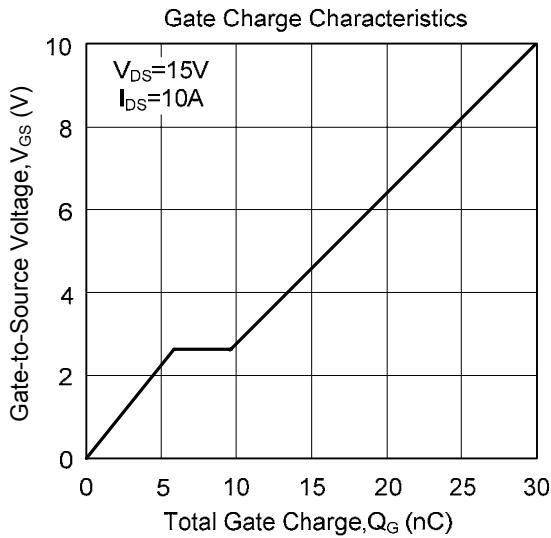
2. Pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$

3. Surface Mounted on FR4 Board, $t \leq 10\text{ sec}$.

■ TYPICAL CHARACTERISTICS



TYPICAL CHARACTERISTICS(Cont.)



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