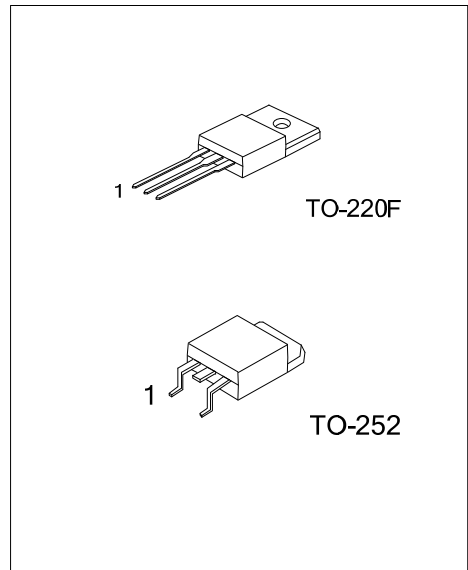
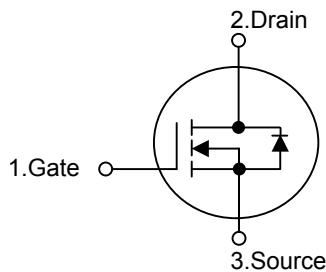


N-CHANNEL ENHANCEMENT MODE

■ FEATURES

- * $R_{DS(ON)} = 30m\Omega @ V_{GS} = 10V$
- * Low Capacitance
- * Optimized gate charge
- * Fast switching capability
- * Avalanche energy specified

■ SYMBOL



■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UT30N03L-TF3-T	UT30N03G-TF3-T	TO-220F	G	D	S	Tube
UT30N03L-TN3-R	UT30N03G-TN3-R	TO-252	G	D	S	Tape Reel
UT30N03L-TN3-T	UT30N03G-TN3-T	TO-252	G	D	S	Tube

<p>UT30N03L-TF3-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) TF3: TO-220F, TN3: TO-252</p> <p>(3) L: Lead Free , G: Halogen Free</p>
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■ ABSOLUTE MAXIMUM RATINGS ($T_J=25^{\circ}\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	30	A
Pulsed Drain Current	I_{DM}	40	A
Avalanche Energy	E_{AS}	90	mJ
Power Dissipation	TO-220F	47	W
	TO-252	42	W
Junction Temperature	T_J	+150	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55 ~ +150	$^{\circ}\text{C}$

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

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction-to-Ambient	TO-220F	62.5	$^{\circ}\text{C/W}$
	TO-252	110	$^{\circ}\text{C/W}$
Junction-to-Case	TO-220F	2.66	$^{\circ}\text{C/W}$
	TO-252	3.0	$^{\circ}\text{C/W}$

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

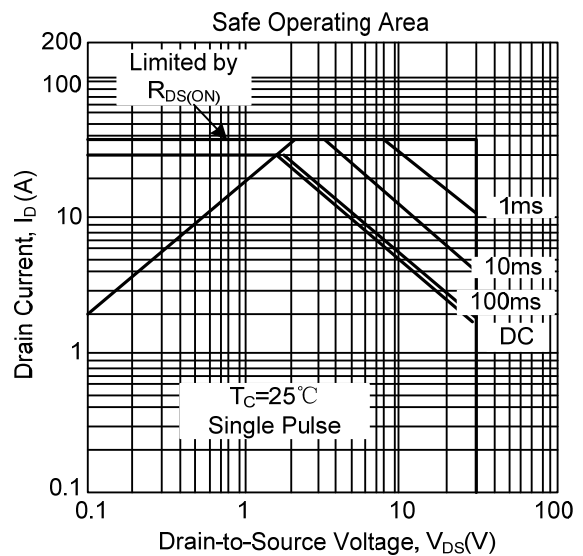
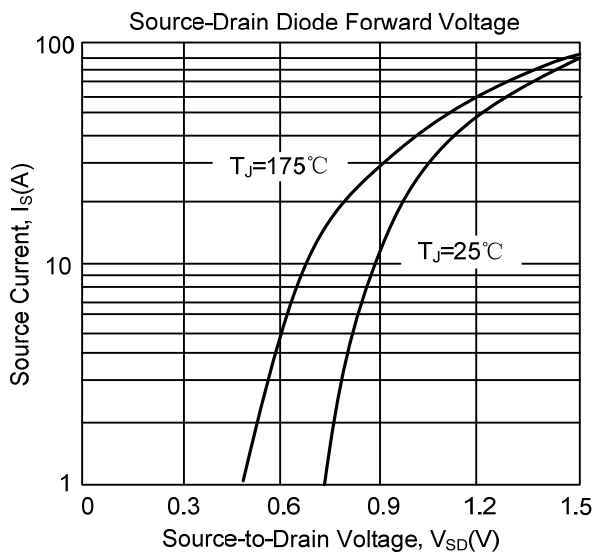
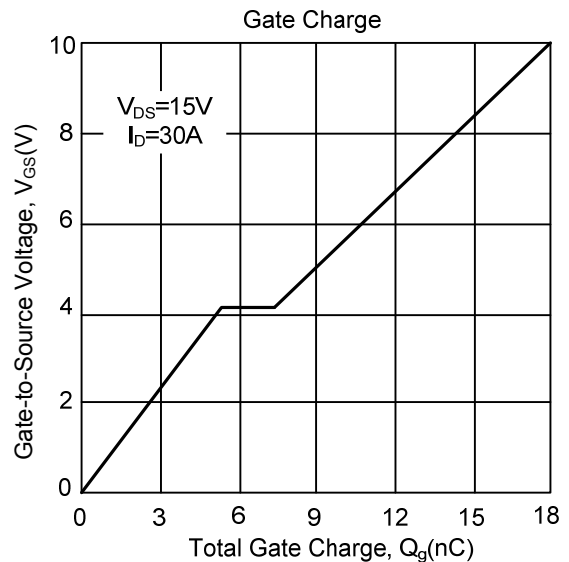
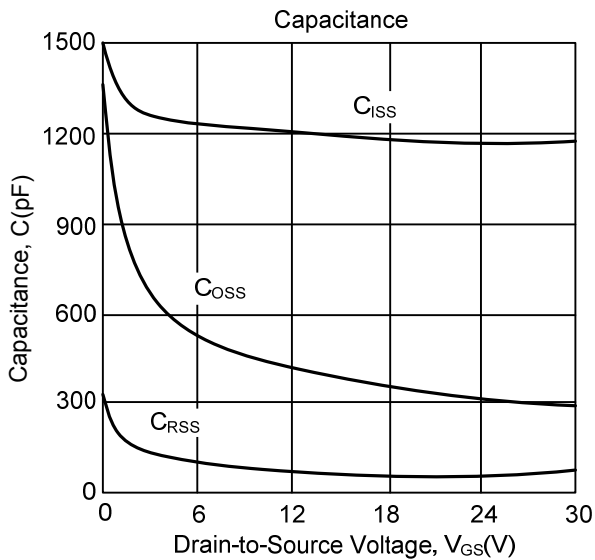
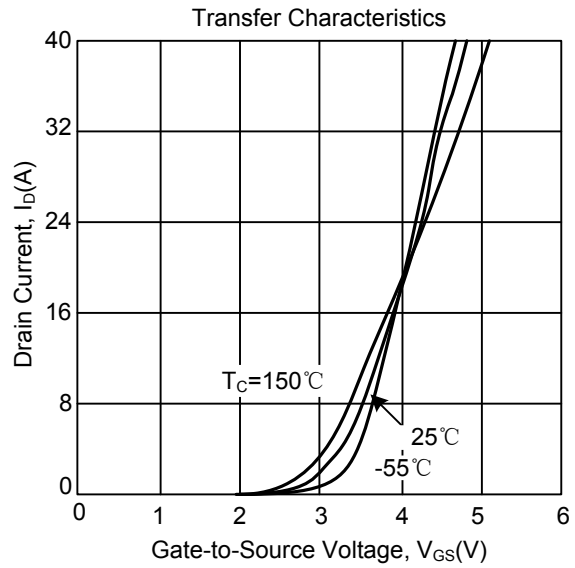
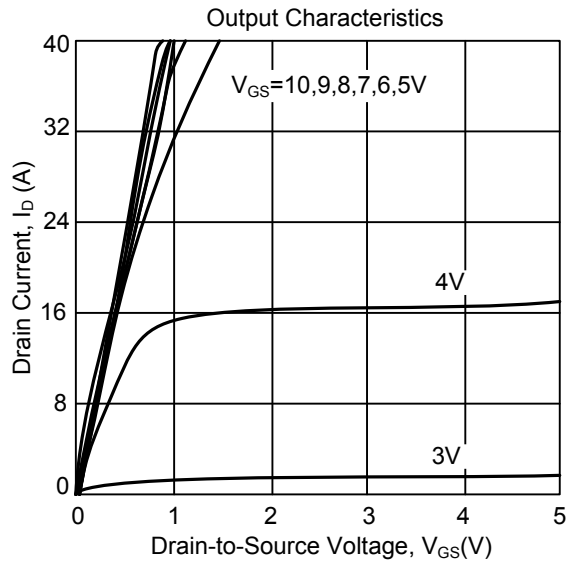
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS} = 0\text{ V}, I_D = 250\ \mu\text{A}$	30			V
Drain-Source Leakage Current	I_{DSS}	$V_{DS} = 30\text{ V}, V_{GS} = 0\text{ V}$			1	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS} = \pm 20\text{ V}, V_{DS} = 0\text{ V}$			± 100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS} = V_{GS}, I_D = 250\ \mu\text{A}$	1.0			V
Static Drain-Source On-State Resistance (Note2)	$R_{DS(ON)}$	$V_{GS} = 10\text{ V}, I_D = 15\text{ A}$		20	30	m Ω
		$V_{GS} = 4.5\text{ V}, I_D = 12.5\text{ A}$		30	45	m Ω
DYNAMIC CHARACTERISTICS						
Input Capacitance	C_{ISS}	$V_{DS} = 25\text{ V}, V_{GS} = 0\text{ V}, f = 1\text{ MHz}$		1170		pF
Output Capacitance	C_{OSS}			320		pF
Reverse Transfer Capacitance	C_{RSS}			60		pF
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	$t_{D(ON)}$	$V_{DD} = 15\text{ V}, I_D = 30\text{ A}, R_L = 0.5\ \Omega,$ $V_{GS} = 10\text{ V}, R_G = 7.5\ \Omega$ (Note 4, 5)		10	20	ns
Turn-On Rise Time	t_R			10	20	ns
Turn-Off Delay Time	$t_{D(OFF)}$			25	40	ns
Turn-Off Fall Time	t_F			15	30	ns
Total Gate Charge	Q_G	$V_{DS} = 15\text{ V}, I_D = 30\text{ A}, V_{GS} = 10\text{ V}$ (Note 4, 5)		18	35	nC
Gate-Source Charge	Q_{GS}			5.5		nC
Gate-Drain Charge	Q_{GD}			2		nC
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS} = 0\text{ V}, I_F = 30\text{ A}$		1.1	1.5	V
Maximum Continuous Drain-Source Diode Forward Current	I_S				30	A
Maximum Pulsed Drain-Source Diode Forward Current	I_{SM}				40	A
Reverse Recovery Time	t_{RR}	$I_F = 30\text{ A}, dI_F/dt = 100\text{ A}/\mu\text{s}$		50	100	ns

Notes: 1. Guaranteed by design, not subject to production testing.

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

3. Essentially independent of operating temperature

TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS(Cont)

