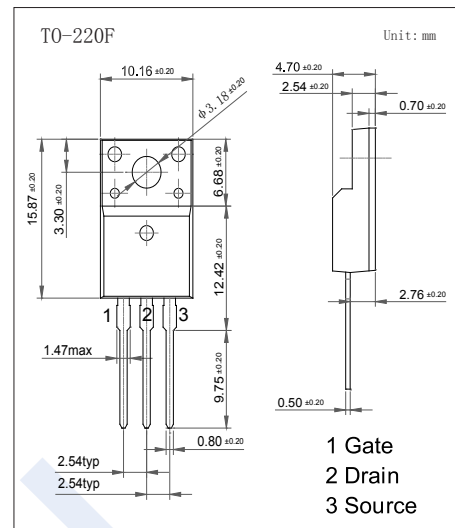
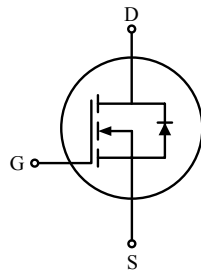


N-Channel MOSFET

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■ Features

- $V_{DS} (V) = 600V$
- $I_D = 10 A (V_{GS} = 10V)$
- $R_{DS(ON)} < 730m\Omega (V_{GS} = 10V)$
- $Q_g(typ.) = 29.5nC$



■ Absolute Maximum Ratings $T_a = 25^\circ C$

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	600	V
Gate-Source Voltage		V_{GS}	± 30	
Continuous Drain Current	$T_c = 25^\circ C$	I_D	10	A
	$T_c = 70^\circ C$		6	
Pulsed Drain Current (Note.1)		I_{DM}	25	
Power Dissipation	$T_c = 25^\circ C$	P_D	46	W
	Derate above $25^\circ C$		0.37	W/ $^\circ C$
Repetitive Avalanche Energy (Note.2)		E_{AR}	16.5	mJ
Single Pulsed Avalanche Energy (Note.1)		E_{AS}	400	
Peak Diode Recovery dv/dt (Note.3)		dv/dt	4.5	V/ns
Thermal Resistance.Junction- to-Ambient		R_{thJA}	62.5	$^\circ C/W$
Thermal Resistance.Junction- to-Case		R_{thJC}	2.7	
Junction Temperature		T_J	150	$^\circ C$
Storage Temperature Range		T_{stg}	-55 to 150	

Note.1: $L = 5.5mH$, $I_S = 10A$, $V_{DD} = 50V$, $R_G = 25\Omega$, Starting $T_J = 25^\circ C$.

Note.2: Repetivity rating : Pulse width limited by junction temperature.

Note.3: $I_S \leq 10A$, $dI/dt \leq 200A/\mu s$, $V_{DD} \leq BV_{DSS}$, Starting $T_J = 25^\circ C$.

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■ Electrical Characteristics $T_a = 25^\circ\text{C}$

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DS}	$I_D=250\ \mu\text{A}$, $V_{GS}=0\text{V}$	600			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=600\text{V}$, $V_{GS}=0\text{V}$			10	μA
Gate-Body Leakage Current	I_{GSS}	$V_{DS}=0\text{V}$, $V_{GS}=\pm 30\text{V}$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$, $I_D=250\ \mu\text{A}$	2.5		4.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10\text{V}$, $I_D=5\text{A}$			0.73	Ω
Input Capacitance	C_{iss}	$V_{GS}=0\text{V}$, $V_{DS}=25\text{V}$, $f=1\text{MHz}$		1350		pF
Output Capacitance	C_{oss}			140		
Reverse Transfer Capacitance	C_{rss}			13		
Total Gate Charge	Q_g	$V_{GS}=10\text{V}$, $V_{DS}=480\text{V}$, $I_D=10\text{A}$ (Note.1)		26		nC
Gate Source Charge	Q_{gs}			6		
Gate Drain Charge	Q_{gd}			10		
Turn-On DelayTime	$t_{d(on)}$	$V_{DS}=300\text{V}$, $I_D=10\text{A}$, $R_G=25\ \Omega$ (Note.1)		32		ns
Turn-On Rise Time	t_r			35		
Turn-Off DelayTime	$t_{d(off)}$			88		
Turn-Off Fall Time	t_f			30		
Body Diode Reverse Recovery Time	t_{rr}	$I_F=10\text{A}$, $V_{GS}=0$, $dI/dt=100\text{A}/\mu\text{s}$		350		
Body Diode Reverse Recovery Charge	Q_{rr}	$I_F=5\text{A}$, $dI/dt=100\text{A}/\mu\text{s}$		4.2		nC
Continuous Source Current	I_S	$V_{GS}<V_{th}$			10	A
Pulsed Source Current	I_{SM}				40	
Diode Forward Voltage	V_{SD}	$I_S=10\text{A}$, $V_{GS}=0\text{V}$			1.4	V

Note.1:Pulse Test : Pulse width $\leq 300\ \mu\text{s}$, Duty Cycle $\leq 2\%$.

■ Typical Characteristics

Fig1. $I_D - V_{DS}$

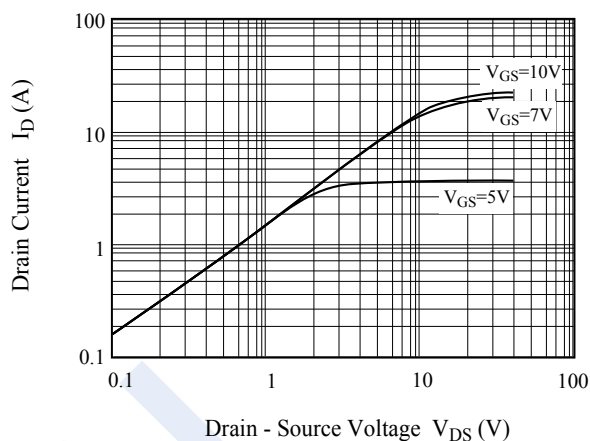
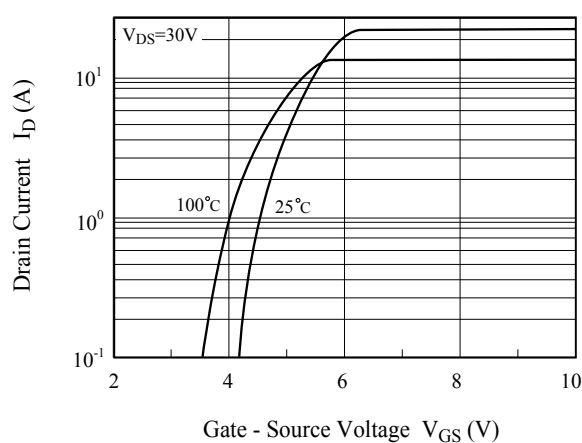


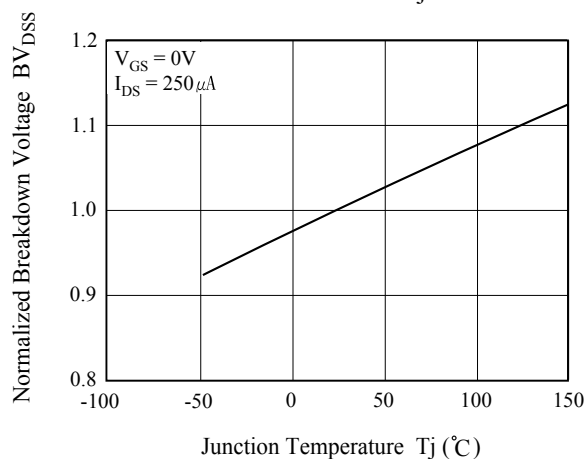
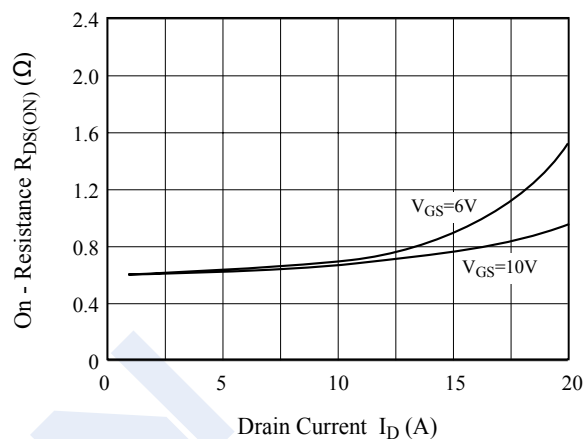
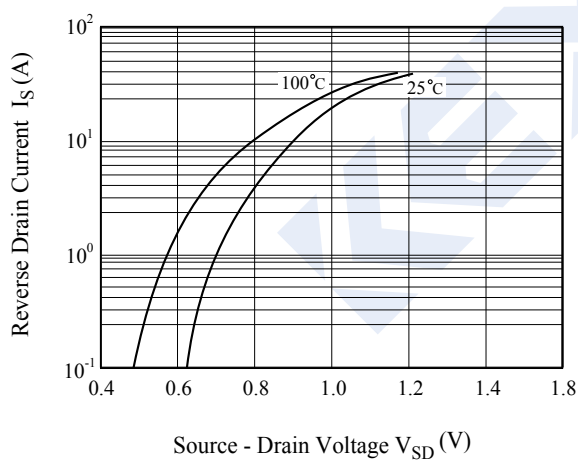
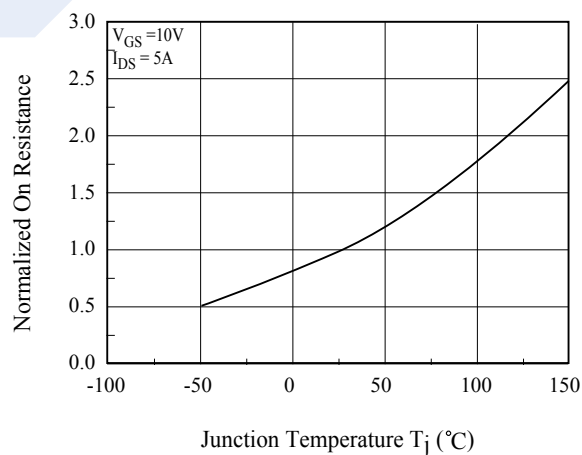
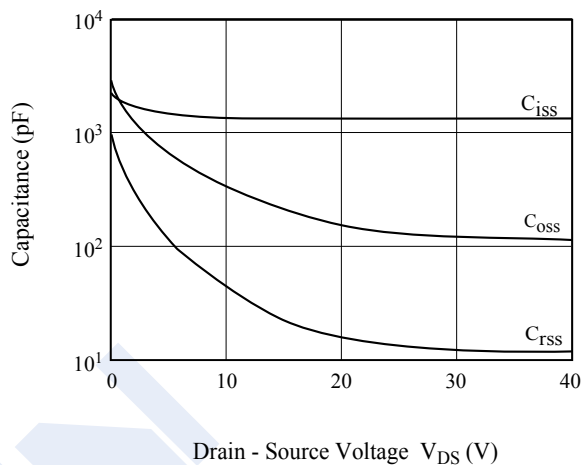
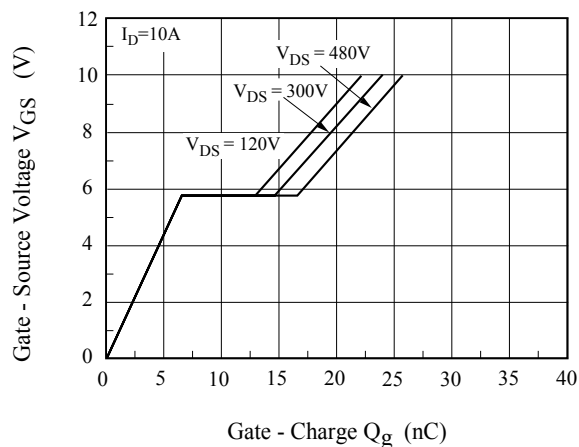
Fig2. $I_D - V_{GS}$



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■ Typical Characteristics

Fig3. $BV_{DSS} - T_j$ Fig4. $R_{DS(ON)} - I_D$ Fig5. $I_S - V_{SD}$ Fig6. $R_{DS(ON)} - T_j$ Fig 7. $C - V_{DS}$ Fig8. $Q_g - V_{GS}$ 

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■ Typical Characteristics

Fig9. Safe Operation Area

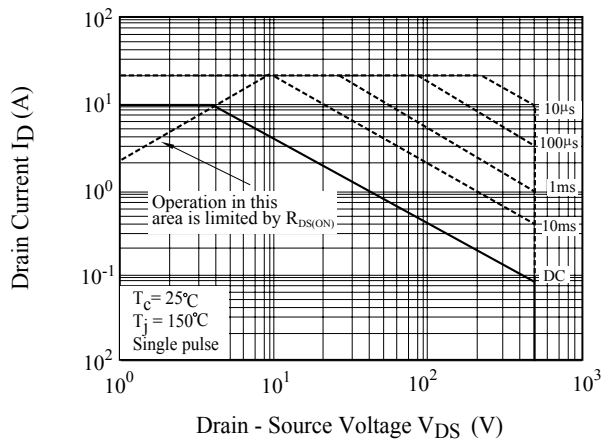
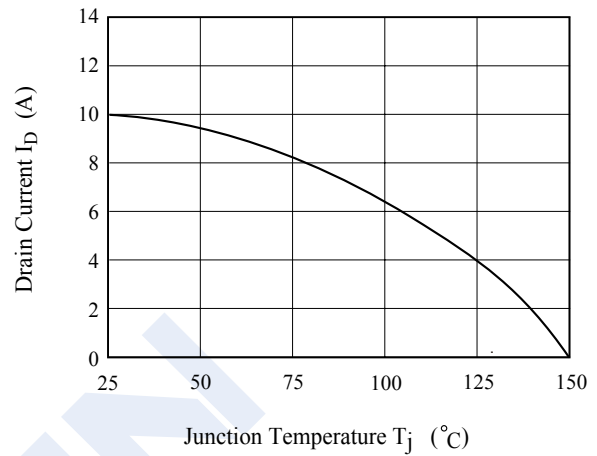
Fig10 $I_D - T_j$ 

Fig11. Transient Thermal Response Curve

