

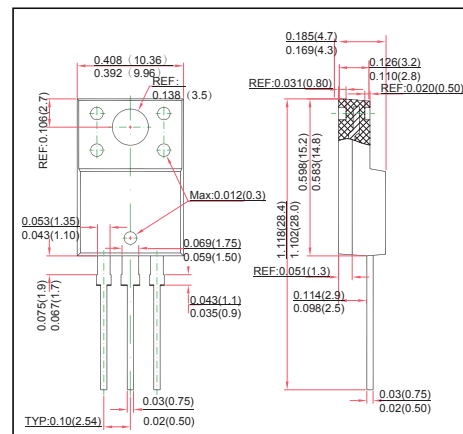
TO-220F Plastic-Encapsulate MOSFETS

FEATURE

- High Current Rating
- Lower RDS(on)
- Lower Capacitance
- Lower Total Gate Charge
- Tighter VSD Specifications Avalanche
- Energy Specified Fast Switching
- Capability N-Channel Power MOSFET

MECHANICAL DATA

- Case style:TO-220F molded plastic
- Mounting position:any



MAXIMUM RATINGS AND CHARACTERISTICS

@ 25°C Ambient Temperature (unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	650	V
Gate-Source Voltage	V_{GS}	± 30	V
Continuous Drain Current	I_D	7.4	A
Pulsed Drain Current	I_{DM}	29.6	A
Single Pulsed Avalanche Energy (note1)	E_{AS}	245	mJ
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	62.5	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 ~ +150	°C
Maximum Lead Temperature for Soldering Purposes , Duration for 5 Seconds	T_L	260	°C

MOSFET ELECTRICAL CHARACTERISTICS $T_A=25^\circ\text{C}$ unless otherwise specified

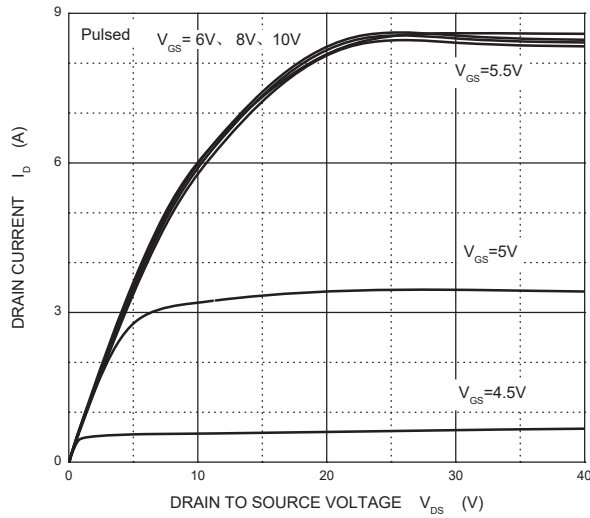
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Off characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D =250μA	650			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =650V, V _{GS} =0V			10	μA
Gate-body leakage current	I _{GSS}	V _{DS} =0V, V _{GS} = ±30V			±100	nA
Drain-source diode forward voltage	V _{SD}	V _{GS} = 0 , I _S =7.4A			1.4	V
On characteristics (note 2)						
Gate-threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	2	3.5	4	V
Static drain-source on-resistance	R _{DS(on)}	V _{GS} =10V, I _D =3.7A		1.1	1.3	Ω
Forward transconductance	g _{fs}	V _{DS} =10V, I _D =3.7A	5			S
Dynamic characteristics (note 3)						
Input capacitance	C _{iss}	V _{DS} =25V,V _{GS} =0V,f =1MHz			1400	pF
Output capacitance	C _{oss}				180	
Reverse transfer capacitance	C _{rss}				21	
Switching characteristics (note 3)						
Total gate charge	Q _g	V _{DS} =520V,V _{GS} =10V,I _D =7.4A		29	38	nC
Gate-source charge	Q _{gs}			7		
Gate-drain charge	Q _{gd}			14.5		
Turn-on delay time	t _{d(on)}	V _{DD} =325V, R _G =25Ω, I _D =7.4A			70	ns
Turn-on rise time	t _r				170	
Turn-off delay time	t _{d(off)}				140	
Turn-off fall time	t _f				130	

Notes :

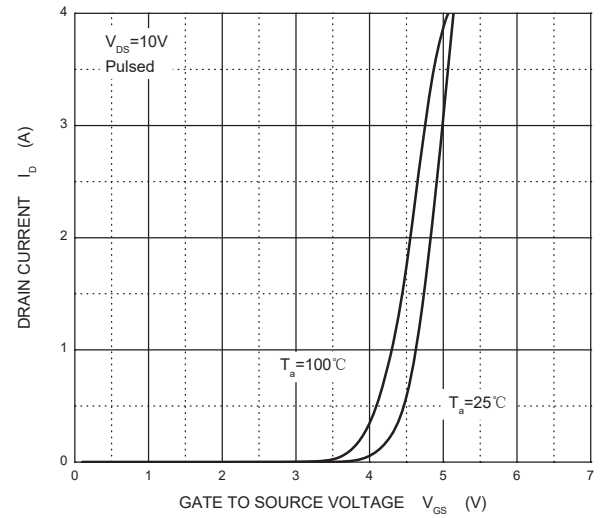
1. $L=10mH, I_{AS}=7A, V_{DD}=50V, V_{GS}=10V, R_G=25\Omega$, Starting $T_J=25^\circ\text{C}$.
2. Pulse Test: Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
3. These parameters have no way to verify.

RATINGS AND CHARACTERISTIC CURVES

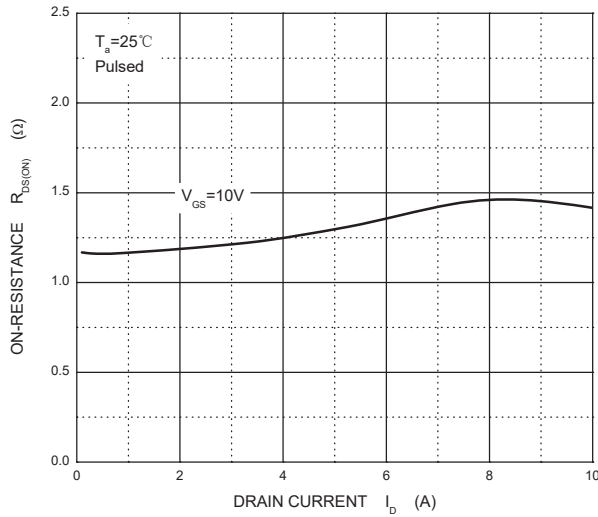
Output Characteristics



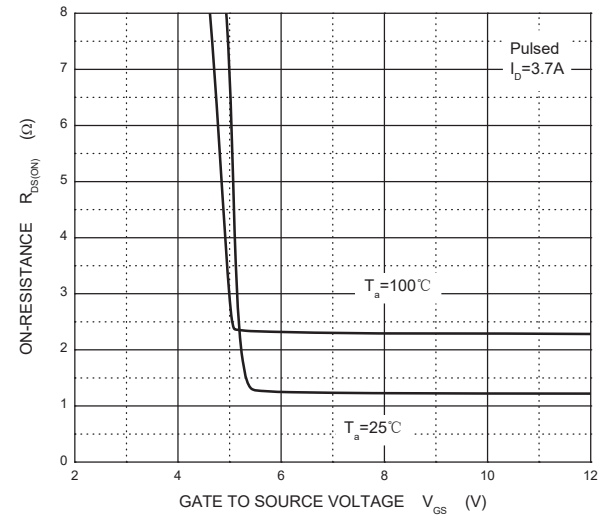
Transfer Characteristics



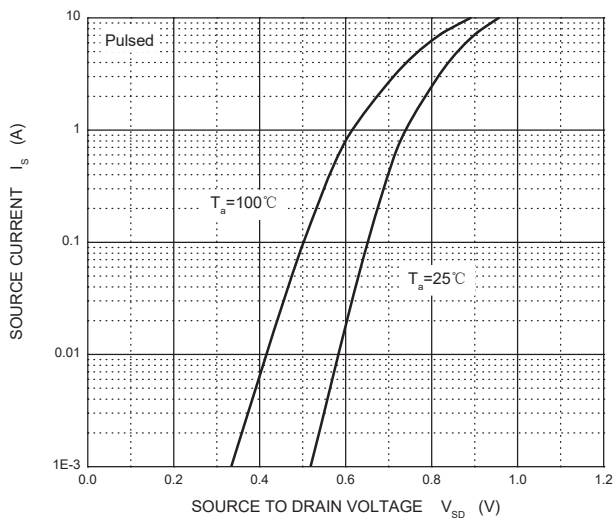
$R_{DS(ON)}$ — I_D



$R_{DS(ON)}$ — V_{GS}



I_S — V_{SD}



Threshold Voltage

