

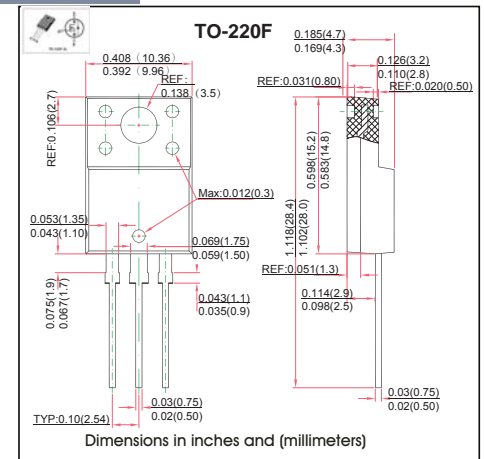
## TO-220F Plastic-Encapsulate MOSFETS

### FEATURE

- Excellent package for good heat dissipation
- Ultra low gate charge
- Low reverse transfer capacitance
- Fast switching capability
- Avalanche energy specified
- 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	$V_{DS}$	800	V
Gate-Source Voltage	$V_{GS}$	$\pm 30$	
Continuous Drain Current	$I_D$	3	A
Pulsed Drain Current	$I_{DM}$	10	
Single Pulsed Avalanche Energy (note1)	$E_{AS}$	170	mJ
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	62.5	°C/W
Junction Temperature	$T_J$	150	°C
Storage Temperature Range	$T_{STG}$	-55 ~ +150	
Maximum lead temperature for soldering purposes , 1/8" from case for 5 seconds	$T_L$	260	

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

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
<b>Off characteristics</b>						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	800			V
Zero gate voltage drain current	$I_{DSS}$	$V_{DS} = 800V, V_{GS} = 0V$			1	$\mu A$
Gate-body leakage current	$I_{GSS}$	$V_{DS} = 0V, V_{GS} = \pm 30V$			$\pm 10$	$\mu A$
<b>On characteristics (note2)</b>						
Gate-threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	3	3.7	4.5	V
Static drain-source on-resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 1.5A$		3.2	4.2	$\Omega$
Forward transconductance	$g_{fs}$	$V_{DS} = 15V, I_D = 1.5A$		2.1		S
<b>Dynamic characteristics (note 3)</b>						
Input capacitance	$C_{iss}$	$V_{DS} = 25V, V_{GS} = 0V, f = 1MHz$		485		pF
Output capacitance	$C_{oss}$			57		
Reverse transfer capacitance	$C_{rss}$			11		
<b>Switching characteristics (note 2,3)</b>						
Turn-on delay time	$t_{d(on)}$	$V_{DD} = 400V, R_G = 4.7\Omega, I_D = 3A, V_{GS} = 10V$		17		ns
Turn-on rise time	$t_r$			27		
Turn-off delay time	$t_{d(off)}$			36		
Turn-off fall time	$t_f$			40		
Total Gate Charge	$Q_g$	$V_{DS} = 640V, V_{GS} = 10V, I_D = 3A$		19		nC
Gate-Source Charge	$Q_{gs}$			3.2		nC
Gate-Drain Charge	$Q_{gd}$			10.8		nC
<b>Drain-Source Diode Characteristics</b>						
Drain-source diode forward voltage	$V_{SD}$	$V_{GS} = 0V, I_S = 3A$			1.6	V
Continuous drain-source diode forward current	$I_S$				3	A
Pulsed drain-source diode forward current	$I_{SM}$				10	A

#### Notes :

1.  $I_L = 3A, V_{DD} = 50V, R_G = 25\Omega, \text{Starting } T_J = 25^\circ\text{C}.$
2. Pulse Test : Pulse width  $\leq 300\mu s$ , duty cycle  $\leq 2\%.$
3. Guaranteed by design, not subject to production

# RATINGS AND CHARACTERISTIC CURVES

