

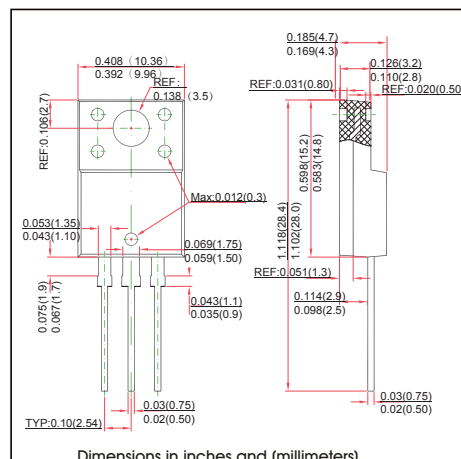
TO-220F Plastic-Encapsulate MOSFETS

FEATURE

- High Current Rating
- Lower RDS(on)
- Lower Capacitance
- Lower Total Gate Charge
- Tighter VSD Specifications
- 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}	600	V
Gate-Source Voltage	V_{GS}	± 30	V
Continuous Drain Current	I_D	7	A
Pulsed Drain Current	I_{DM}	30.8	A
Single Pulsed Avalanche Energy (note1)	E_{AS}	580	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 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	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	600			V
Drain-source diode forward voltage(note2)	V_{SD}	$V_{GS} = 0V, I_S = 7A$			1.4	V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = 600V, V_{GS} = 0V$			1	μA
Gate-body leakage current (note2)	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 30V$			± 100	nA
On characteristics (note2)						
Gate-threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	2.0	3.0	4.0	V
Static drain-source on-resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 3.5A$		1.0	1.3	Ω
Forward transconductance	g_{FS}	$V_{DS} = 50V, I_D = 3.9A$	5			S
Dynamic characteristics (note 3)						
Input capacitance	C_{iss}	$V_{DS} = 25V, V_{GS} = 0V, f = 1MHz$			1600	pF
Output capacitance	C_{oss}				190	
Reverse transfer capacitance	C_{rss}				25	
Switching characteristics (note 3)						
Turn-on delay time (note3)	$t_{d(on)}$	$V_{DD} = 300V, V_{GS} = 10V, R_G = 25\Omega, I_D = 7A$			80	ns
Turn-on rise time (note3)	t_r				165	
Turn-off delay time (note3)	$t_{d(off)}$				160	
Turn-off fall time (note3)	t_f				120	

Notes :

1. $L = 19.5mH, I_L = 7A, V_{DD} = 50V, V_{GS} = 10V, R_G = 0\Omega$, 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

