

HF3710T

100V N-Channel MOSFET

FEATURES

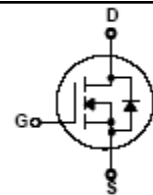
- Originative New Design
- Superior Avalanche Rugged Technology
- Robust Gate Oxide Technology
- Very Low Intrinsic Capacitances
- Excellent Switching Characteristics
- Unrivalled Gate Charge : 22 nC (Typ.)
- Extended Safe Operating Area
- Lower $R_{DS(ON)}$: 0.0110 Ω (Typ.) @ $V_{GS}=10V$
- 100% Avalanche Tested

$$BV_{DSS} = 100V$$

$$R_{DS(on) \text{ typ}} = 0.011 \Omega$$

TO-220F


1.Gate 2. Drain 3. Source



Absolute Maximum Ratings $T_C=25^\circ\text{C}$ unless otherwise specified

Symbol	Parameter	Value	Units
V_{DSS}	Drain-Source Voltage	100	V
I_D	Drain Current – Continuous ($T_C = 25^\circ\text{C}$)	50	A
	Drain Current – Continuous ($T_C = 100^\circ\text{C}$)	30A	A
I_{DM}	Drain Current – Pulsed (Note 1)	230	A
V_{GS}	Gate-Source Voltage	± 20	V
E_{AS}	Single Pulsed Avalanche Energy (Note 2)	230	mJ
I_{AR}	Avalanche Current (Note 1)	28	A
E_{AR}	Repetitive Avalanche Energy (Note 1)	20	mJ
dv/dt	Peak Diode Recovery dv/dt (Note 3)	5.8	V/ns
P_D	Power Dissipation ($T_C = 25^\circ\text{C}$) – Derate above 25°C	200	W
		1.3	W/ $^\circ\text{C}$
T_J, T_{STG}	Operating and Storage Temperature Range	-55 to +150	$^\circ\text{C}$
T_L	Maximum lead temperature for soldering purposes, 1/8" from case for 5 seconds	300	$^\circ\text{C}$

Thermal Resistance Characteristics

Symbol	Parameter	Typ.	Max.	Units
$R_{\theta JC}$	Junction-to-Case	--	0.85	$^\circ\text{C}/\text{W}$
$R_{\theta CS}$	Case-to-Sink	0.5	--	
$R_{\theta JA}$	Junction-to-Ambient	--	62.5	

N-Channel 100V(D-S) MOSFET
Absolute Maximum Ratings ($T_c=25^{\circ}\text{C}$ Unless Otherwise Noted)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	± 20	V

Electrical Characteristics ($T_j=25^{\circ}\text{C}$ Unless Otherwise Specified)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
STATIC						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	100			V
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	2		4	V
I_{GSS}	Gate Leakage Current	$V_{DS}=0V, V_{GS}=\pm 20V$			± 100	nA
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=100V, V_{GS}=0V$			1	μA
$R_{DS(ON)}$	Drain-Source On-State Resistance	$V_{GS}=10V, I_D=11.5A$		11	14	$m\Omega$
V_{SD}	Diode Forward Voltage	$I_S=1A, V_{GS}=0V$		0.6	1	V
DYNAMIC						
Q_g	Total Gate Charge	$V_{DS}=50V, V_{GS}=10V, I_D=11.5A$		40		nC
Q_{gs}	Gate-Source Charge			9.4		
Q_{gd}	Gate-Drain Charge			6		
C_{iss}	Input capacitance	$V_{DS}=30V, V_{GS}=0V, f=1.0MHz$		2071		pF
C_{oss}	Output Capacitance			704		
C_{rss}	Reverse Transfer Capacitance			28		
$t_{d(on)}$	Turn-On Delay Time	$V_{DS}=50V, R_L=4.35\Omega$ $V_{GS}=10V, R_G=3\Omega$ $I_D=11.5A$		19.5		ns
t_r	Turn-On Rise Time			37.6		
$t_{d(off)}$	Turn-Off Delay Time			41		
t_f	Turn-Off Fall Time			13		
T_{rr}	Reverse Recovery Time	$I_D=11.5A, V_{GS}=0V, di/dt=100A/\mu s$		43		ns
Q_{rr}	Reverse Recovery Charge			56		nC

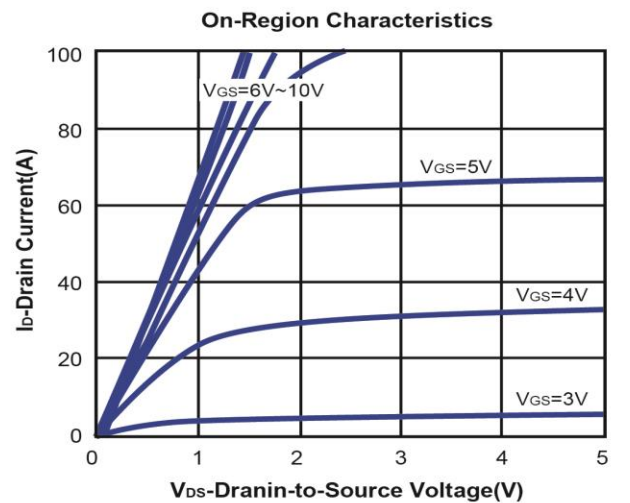
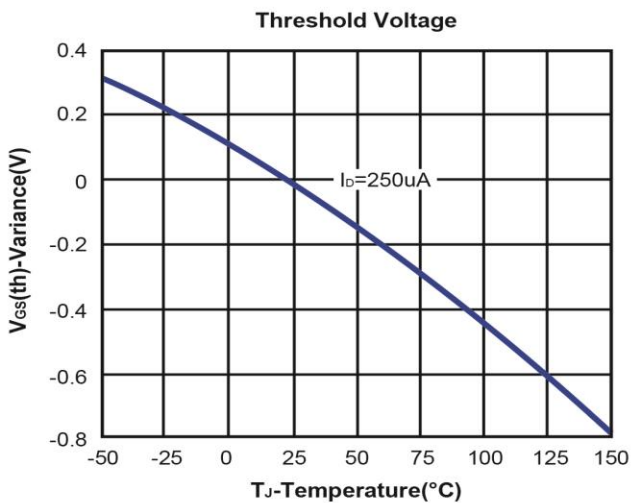
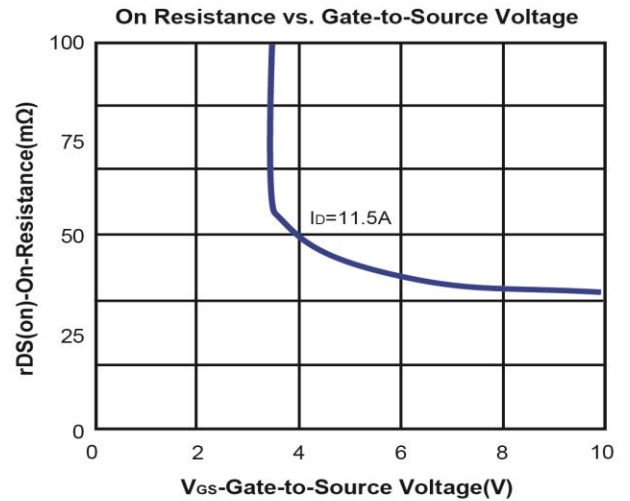
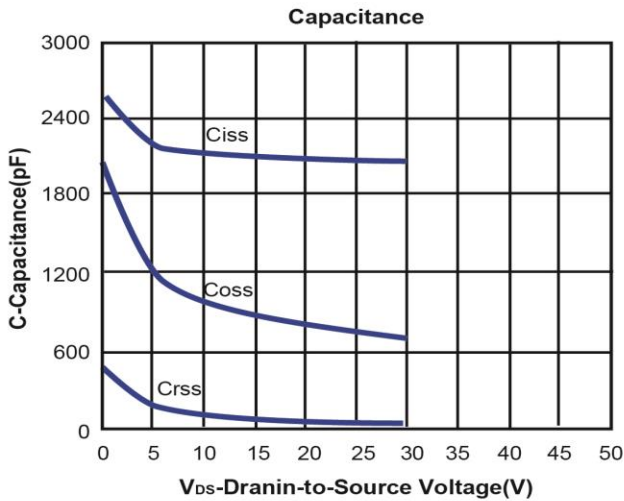
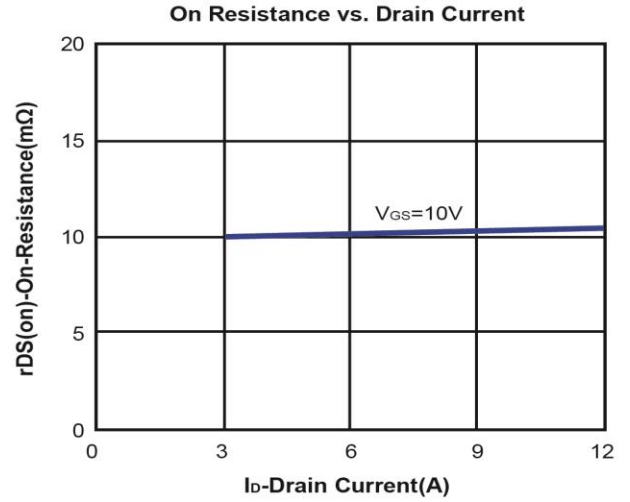
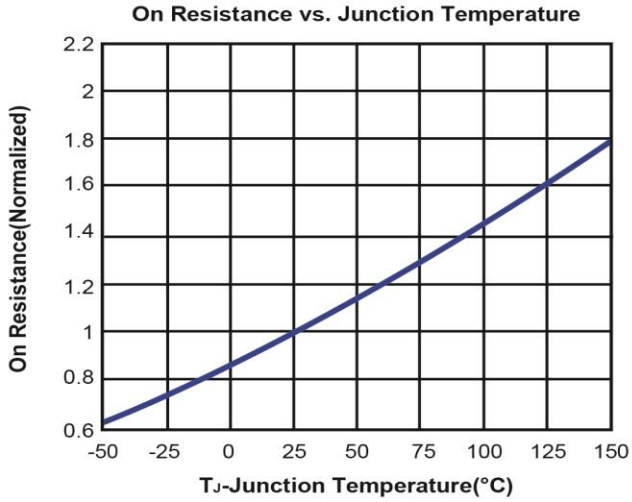
Notes: a. Based on epoxy or solder paste and bond wire Cu 1.5mil x1 (G), Al 15mil x2 (S) on each die of TO-220 package.

 b. Pulse test; pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.

c. Force mos reserves the right to improve product design, functions and reliability without notice.

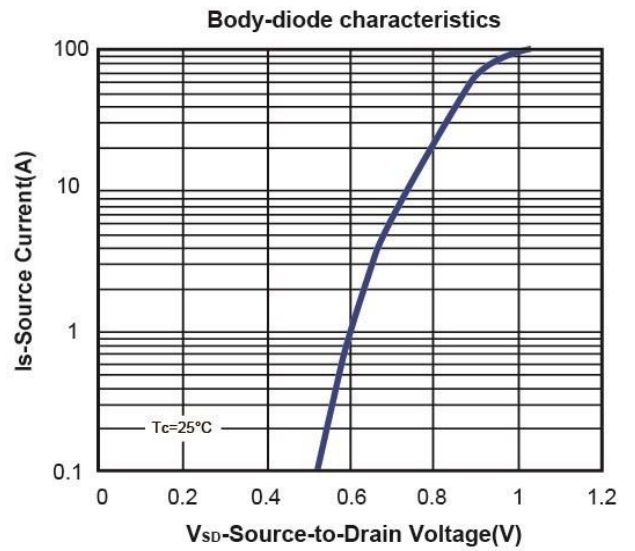
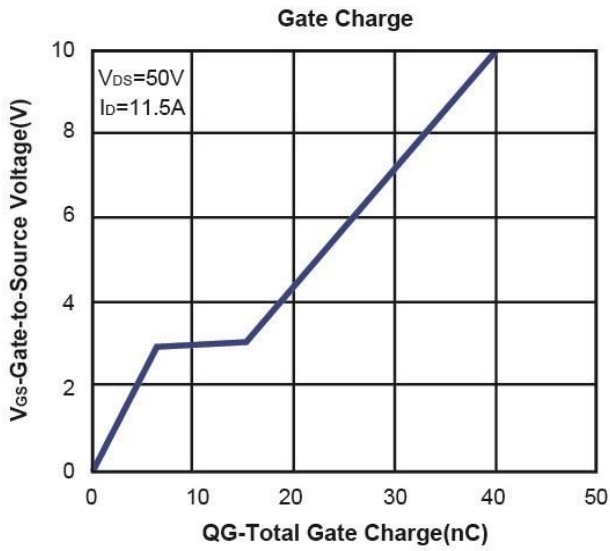
N-Channel 100V(D-S) MOSFET

Typical Characteristics (T_J =25°C Noted)



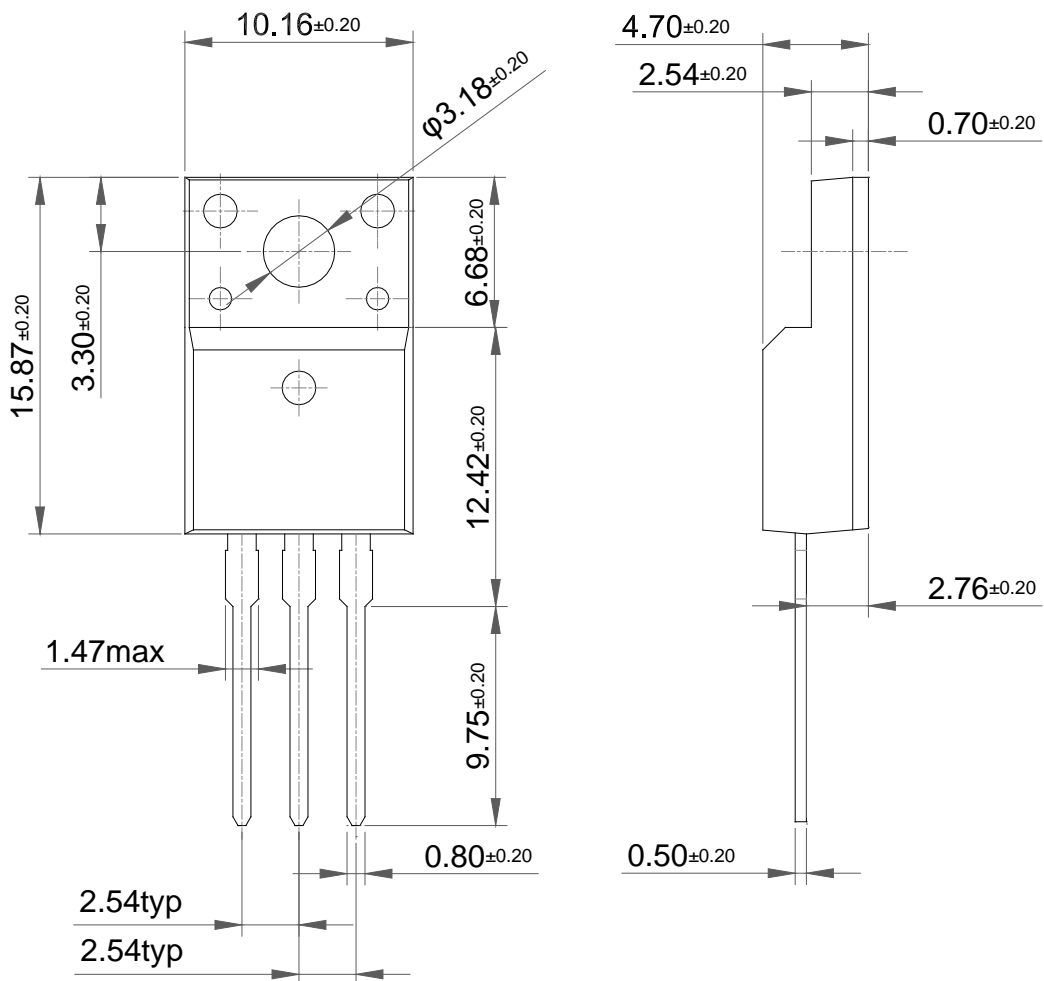
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Typical Characteristics (T_J =25°C Noted)



Package Dimension

TO-220F



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