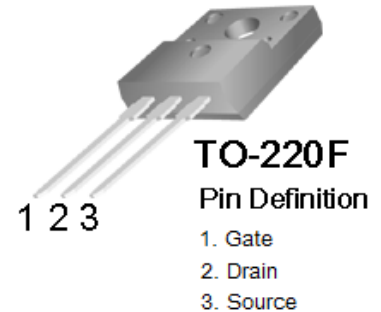
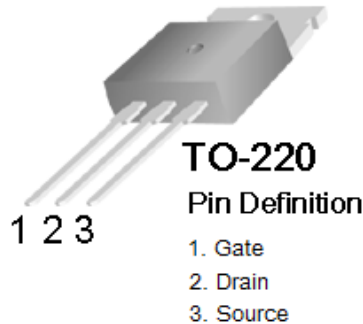


800V N-Channel Power MOSFET

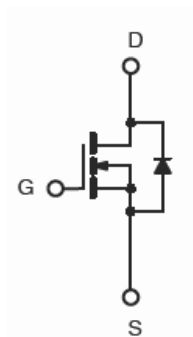
Features

- High Voltage: $BV_{DSS}=800V(\text{Min.})$
- $I_D : 3A$
- 100% avalanche tested
- Improved dv/dt capability
- Low gate charge
- Halongen free package available



Application

- Ballast Bridge
- Switch Mode Power Supplier
- Power Factor Correction
- Lighting



Ordering Information

Type NO	Marking	Package Code
WMX3N80	3N80X	TO-220
WMF3N80	3N80F	TO-220F

Absolute Maximum Ratings

($T_c=25^\circ\text{C}$)

Characteristic	Symbol	WMX3N80	WMF3N80	Unit
Drain-source voltage	V_{DSS}	800		V
Gate-source voltage	V_{GSS}	± 30		V
Continuous Drain Current @ $T_c=25^\circ\text{C}$	I_D	3	3*	A
Drain current (Pulsed)	I_{DM}	12	12*	A
Avalanche Current, Repetitive or Not-Repetitive (Pulse width limited by T_j max)	I_{AR}	3		A
Single pulsed avalanche energy	E_{AS}	283		mJ
Total Power Dissipation @ $T_c=25^\circ\text{C}$	P_{DTOT}	94	32	W
Operating Junction and Storage temperature range	T_{stg}	-55~150		$^\circ\text{C}$

* Limited by maximum junction temperature

Characteristic	Symbol	WMX3N80	WMF3N80	Unit
Maximum Junction-case	$R_{th(J-C)}$	1.35	3.9	$^\circ\text{C/W}$
Thermal resistance Junction-ambient (Note)	$R_{th(J-A)}$	62.5	62.5	$^\circ\text{C/W}$

* Note: Surface mounted on FR4 board $t \leq 10\text{sec}$

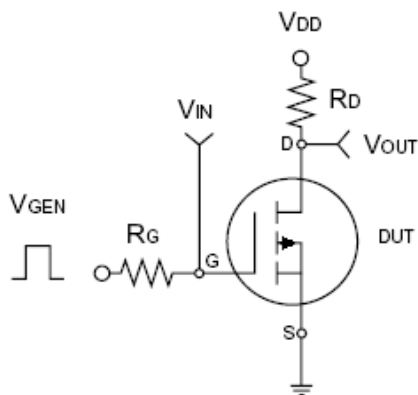
(Tc=25°C)

Electrical Characteristics

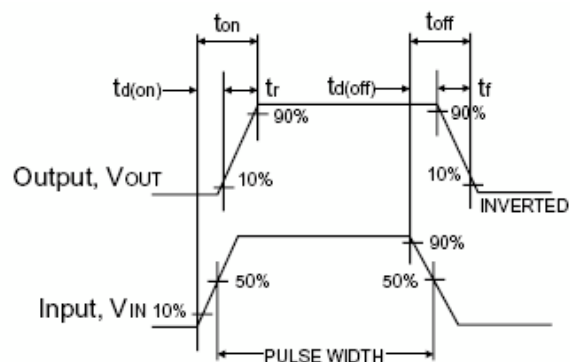
Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Drain-source breakdown voltage	BV_{DSS}	$I_D=250\mu A, V_{GS}=0V$	800	-	-	V
Gate threshold voltage	$V_{GS(th)}$	$I_D=250\mu A, V_{DS}=V_{GS}$	2.0	-	4.0	V
Drain-source cut-off current	I_{DSS}	$V_{DS}=800V, V_{GS}=0V$	-	-	10	μA
Gate leakage current	I_{GSS}	$V_{DS}=0V, V_{GS}=30V$	-	-	100	nA
Drain-source on-resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=1.5A$	-	3.3	4.2	Ω
Forward transfer conductance	g_{fs}	$V_{DS}=30V, I_D=1.5A$	-	3.7	-	S
Input capacitance	C_{iss}	$V_{GS}=0V,$	-	696	-	pF
Output capacitance	C_{oss}	$V_{DS}=25V,$	-	65	-	
Reverse transfer capacitance	C_{rss}	$f=1\text{ MHz}$	-	10.2	-	
Total gate charge	Q_g	$V_{GS}=10V,$	-	19	-	nC
Gate-source charge	Q_{gs}	$V_{DS}=640V,$	-	4	-	
Gate-drain charge	Q_{gd}	$I_D=3A$	-	7.6	-	
Turn-on delay time	$t_{d(on)}$	$I_D=3A$ $V_{DD}=400V,$ $R_G=25\Omega$	-	48	-	nS
Rise time	t_r		-	36	-	
Turn-off delay time	$t_{d(off)}$		-	106	-	
Fall time	t_f		-	41	-	

Note:

- Pulse test: pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$
- For design reference only, not subject to production testing.
- Switching time is essentially independent of operating temperature.

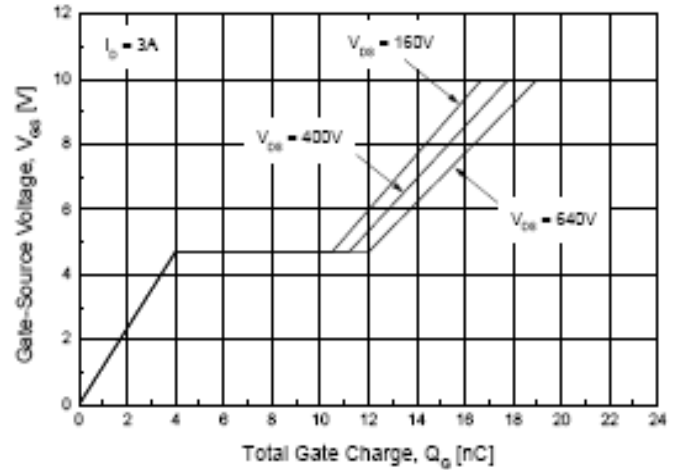
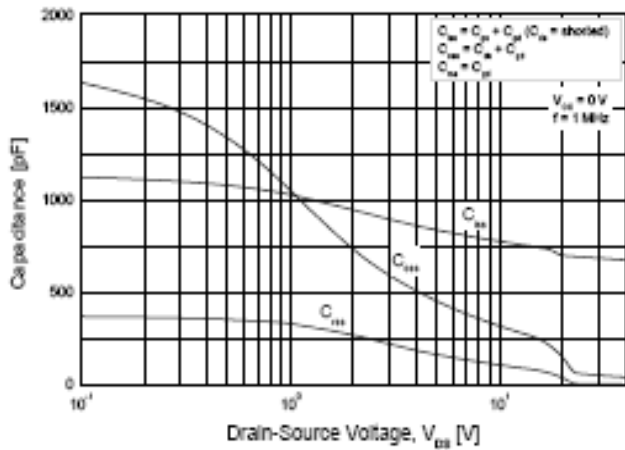
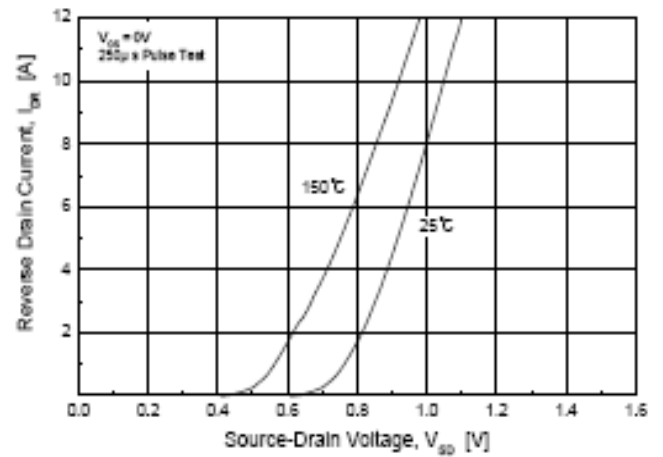
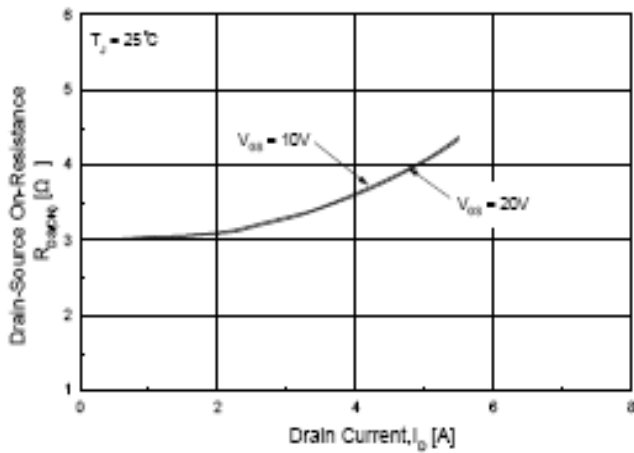
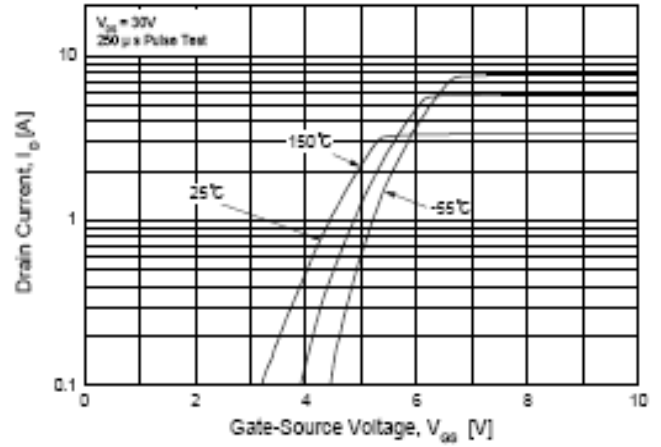
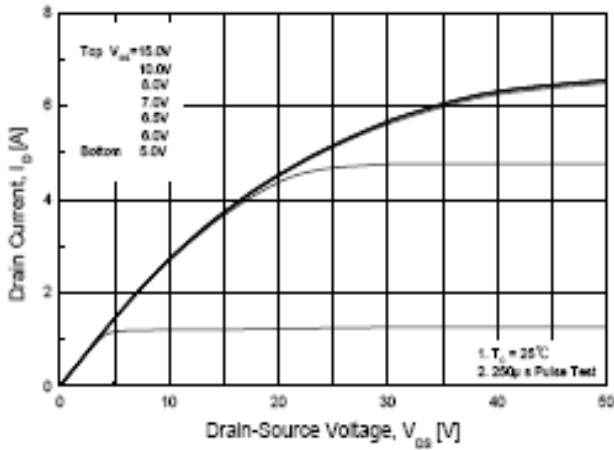


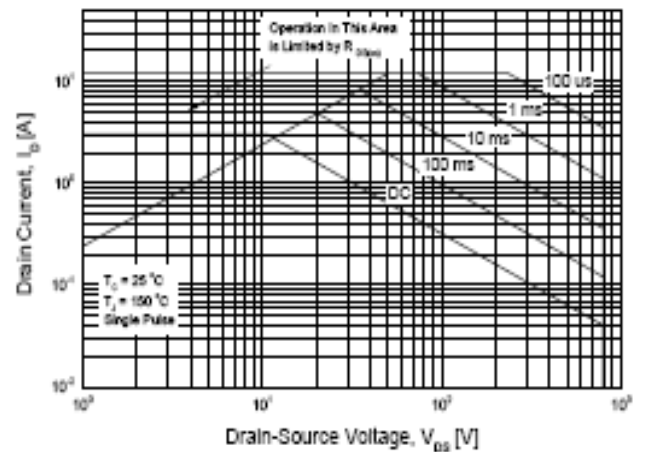
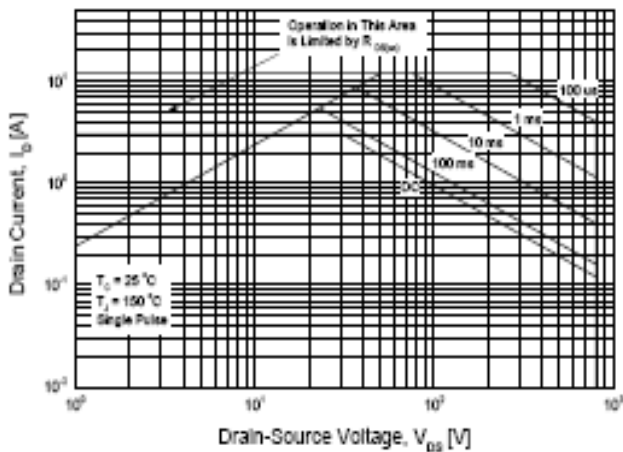
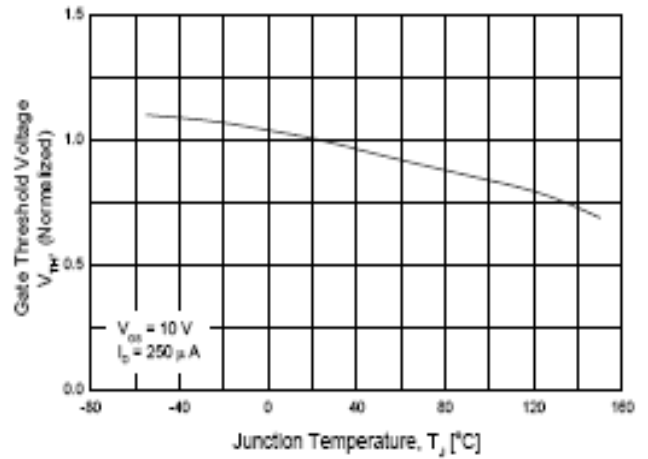
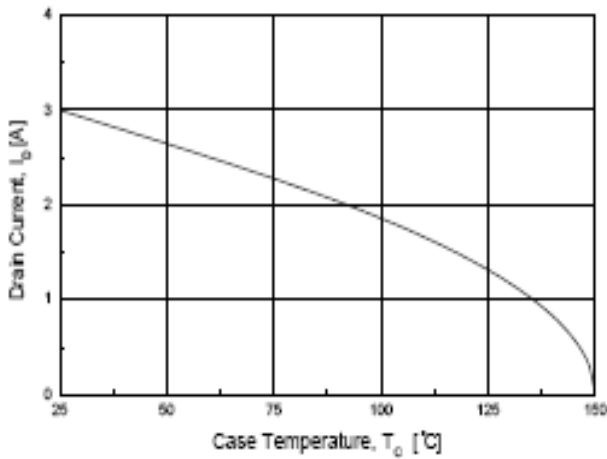
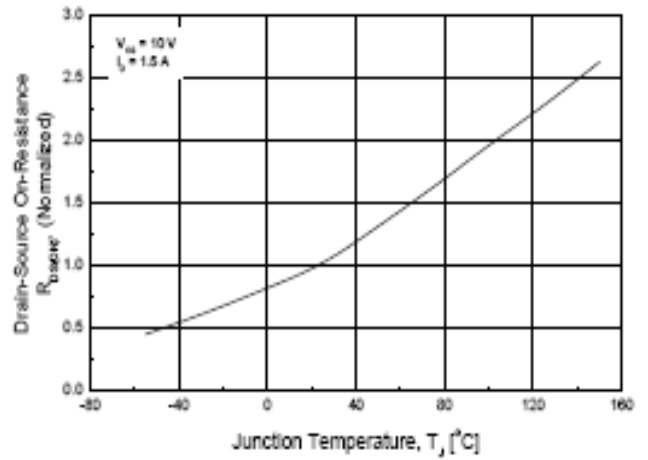
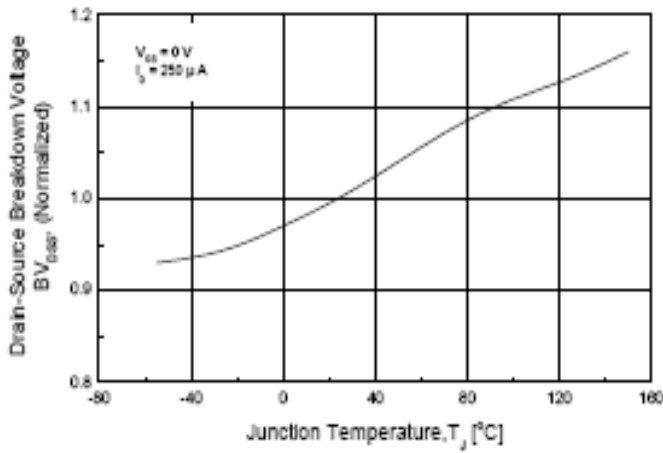
Switching Test Circuit

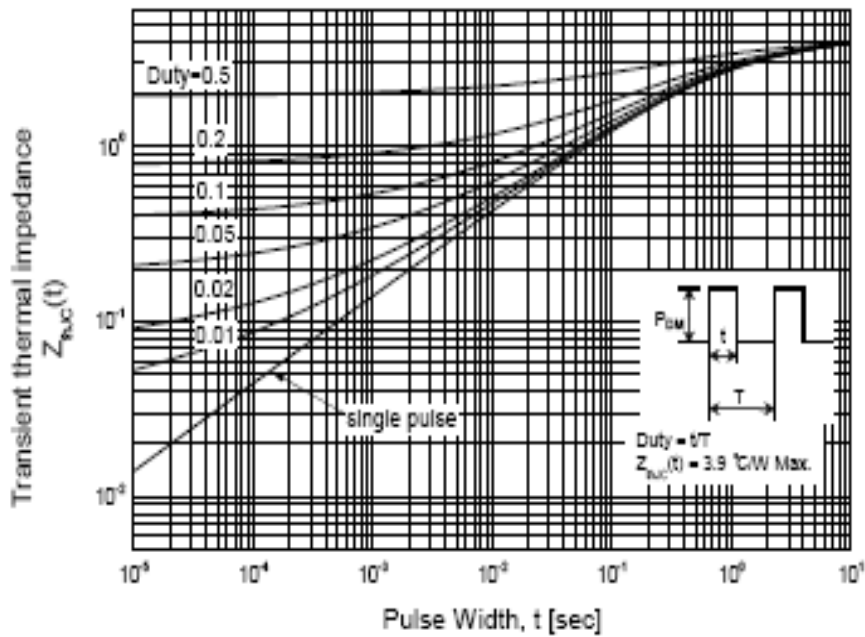
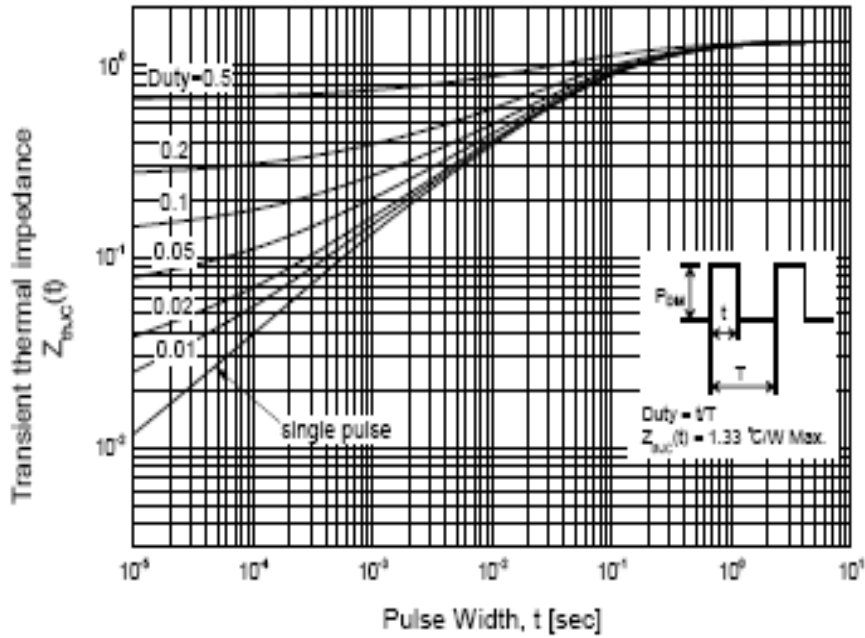


Switchin Waveforms

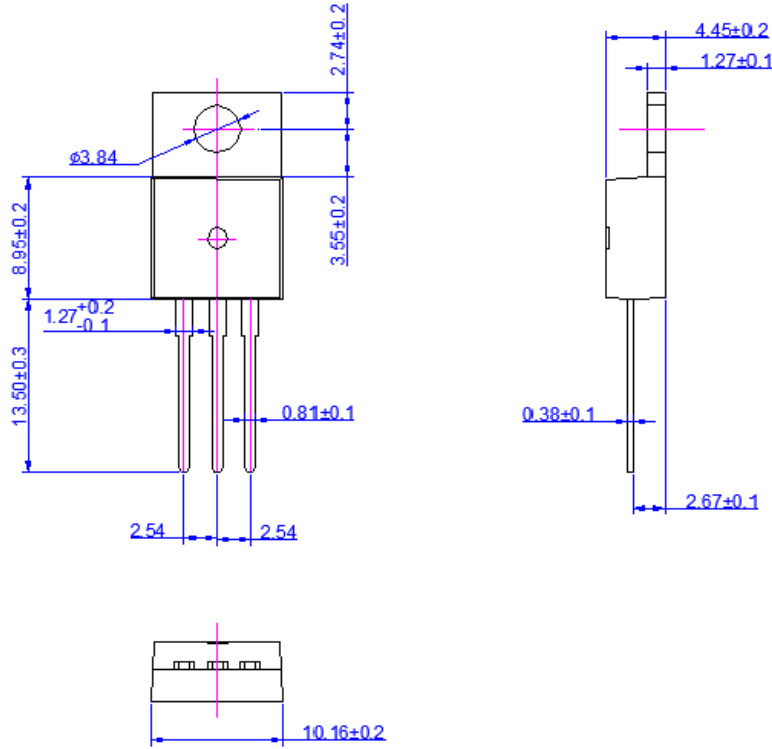
Electrical Characteristic Curves







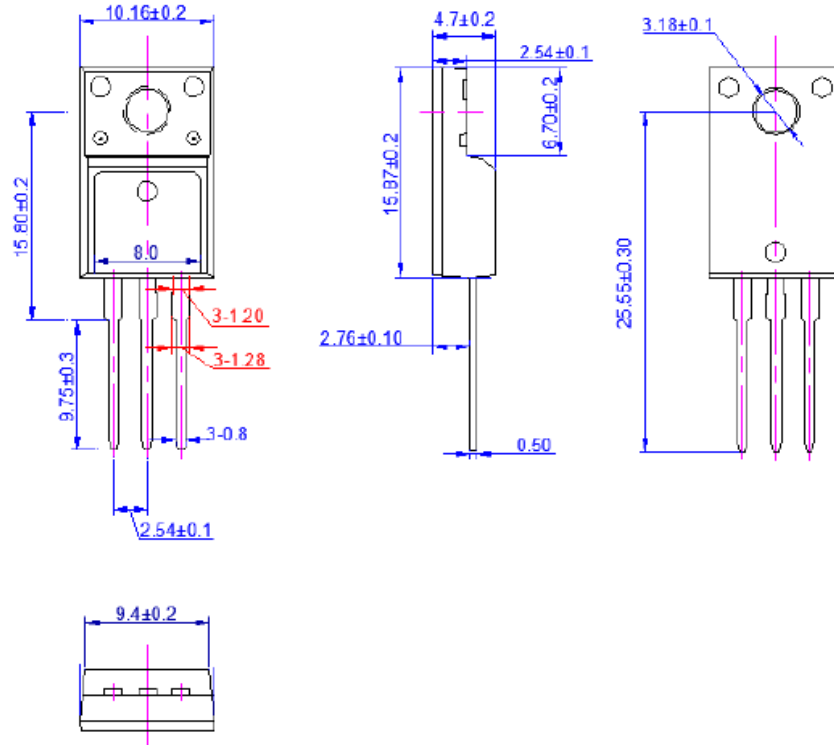
TO220 Package Dimension



Marking Diagram

First Line	WTC	Company Name	
Second Line	3N80X	Product Code	
Third Line	<u>B</u> <u>E</u> <u>0</u> <u>M</u> <u>X</u>	1st (Year Code)	A-2010 B-2011 C-2012 ...
		2nd (Month Code)	A-Jan, B-Feb, C-Mar, D-Apr, E-May, F-Jun, G-Jul, H-Aug, I-Sep, J-Oct, K-Nov, L-Dec
		3rd (Lot Code)	0~9, A~Z
		4th (Product Code)	M - MOS, T - Transistor, L - Linear
		5th (Package Code)	I - TO251, D - TO252, L - TO92, M - TO126, X - TO220, F - TO220F, Y - SOT89, S - SOP8
		6th (Spec Code)	(Reserve)

TO220F Package Dimension



Marking Diagram

First Line	WTC	Company Name	
Second Line	3N80F	Product Code	
Third Line	<u>B</u> <u>E</u> <u>0</u> <u>M</u> <u>F</u>	1st (Year Code)	A-2010 B-2011 C-2012 ...
		2nd (Month Code)	A-Jan, B-Feb, C-Mar, D-Apr, E-May, F-Jun, G-Jul, H-Aug, I-Sep, J-Oct, K-Nov, L-Dec
		3rd (Lot Code)	0~9 , A~Z
		4th (Product Code)	M - MOS , T - Transistor, L - Linear
		5th (Package Code)	I - TO251, D - TO252 , L - TO92, M - TO126, X - TO220, F - TO220F, Y - SOT89, S - SOP8
		6th (Spec Code)	(Reserve)