

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
1500V	$7.5\Omega@10V$	3A

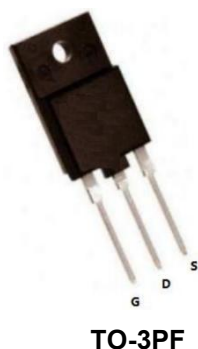
Feature

- High speed switching
- Intrinsic capacitances and Qg minimized
- Suffix "-Q1" for AEC-Q101

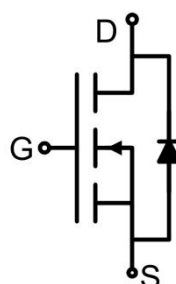
Application

- Switched applications

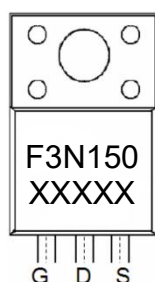
Package



Circuit diagram



Marking



Absolute maximum ratings ($T_J=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	1500	V
Gate-Source Voltage	V_{GS}	± 30	V
Continuous Drain Current($T_C=25^{\circ}\text{C}$)	I_D	3	A
Continuous Drain Current($T_C=100^{\circ}\text{C}$)	$I_D(100^{\circ}\text{C})$	2.1	A
Pulsed Drain Current ¹⁾	I_{DM}	9	A
Power Dissipation($T_C=25^{\circ}\text{C}$)	P_D	88	W
Thermal Resistance,Junction-to-Case	$R_{\theta JC}$	1.7	$^{\circ}\text{C/W}$
Single pulse avalanche energy ²⁾	E_{AS}	225	mJ
Single pulse avalanche current ²⁾	I_{AS}	3	A
Junction Temperature	T_J	175	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	-55 ~ +175	$^{\circ}\text{C}$

Electrical characteristics ($T_J=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D =1mA	1500			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =1500V,V _{GS} = 0V,T _C =25°C			1.0	μA
Zero gate voltage drain current	I _{DSS}	V _{DS} =1500V,V _{GS} = 0V,T _C =125°C			100	μA
Gate-body leakage current	I _{GSS}	V _{GS} =±30V, V _{DS} = 0V			±100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	3	4	5	V
Drain-source on-resistance	R _{DS(on)}	V _{GS} =10V, I _D =1.5A		5.5	7.5	Ω
Dynamic characteristics ³⁾						
Input Capacitance	C _{iss}	V _{DS} =40V,V _{GS} =0V,f =1MHz		1700		pF
Output Capacitance	C _{oss}			61		
Reverse Transfer Capacitance	C _{rss}			5.5		
Total Gate Charge	Q _g	V _{DS} =1200V,V _{GS} =10V,I _D =1.5A		32		nC
Gate-Source Charge	Q _{gs}			8.7		
Gate-Drain Charge	Q _{gd}			12		
Gate resistance	R _G	f =1MHz open drain		2		Ω
Turn-on delay time	t _{d(on)}	V _{DD} =750V, V _{GS} =10V, R _G =3Ω, I _D =1.5A		22		nS
Turn-on rise time	t _r			45		
Turn-off delay time	t _{d(off)}			42		
Turn-off fall time	t _f			58		
Source-Drain Diode characteristics						
Source-drain current	I _{SD}	T _C =25°C			3	A
Pulsed Source-drain current	I _{SDM}	T _C =25°C			9	A
Diode Forward voltage	V _{SD}	V _{GS} =0V, I _S =3A			1.1	V
Reverse Recovery Time	t _{rr}	I _F =3A,di/dt =100A/μs		390		nS
Reverse Recovery Charge	Q _{rr}			2.2		uC
Peak Reverse Recovery Current	I _{rrm}			11		A

Notes:

1) Repetitive Rating: Pulse width limited by maximum junction temperature

2) $T_J = 25^{\circ}\text{C}, V_{DD} = 50V, V_G = 10V, R_G = 25\Omega$

3) Guaranteed by design, not subject to production testing.

Typical Characteristics

Figure1. Safe operating area

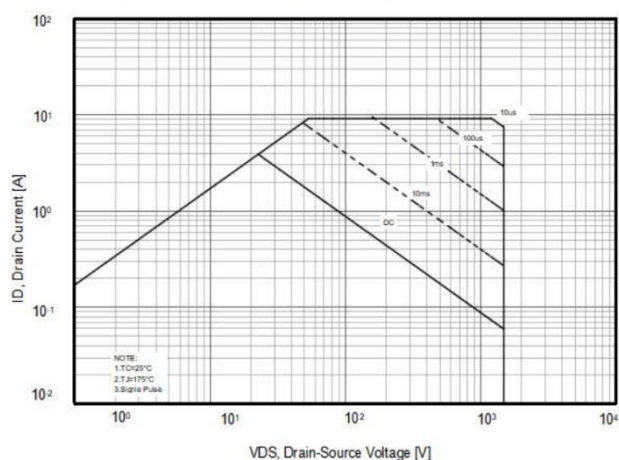


Figure2. Source-Drain Diode Forward Voltage

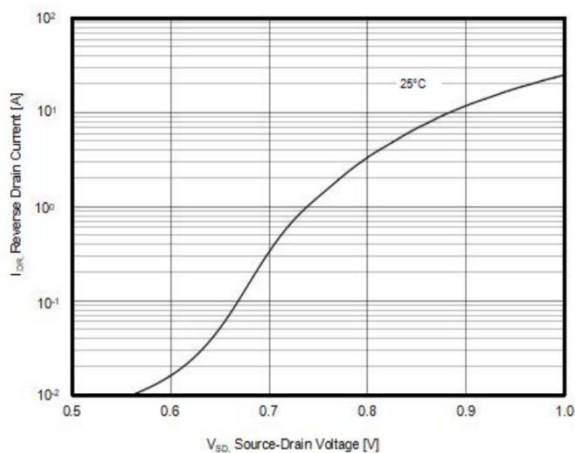


Figure3. $R_{DS(ON)}$ vs Junction Temperature

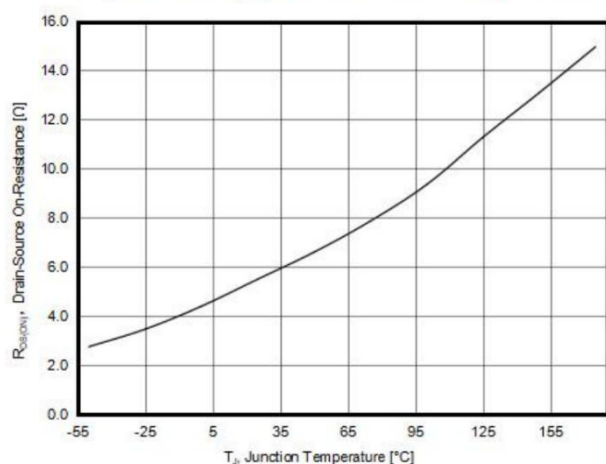


Figure4. BV_{DSS} vs Junction Temperature

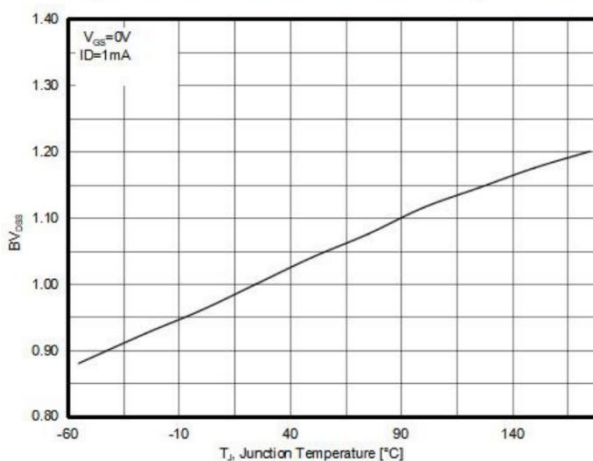


Figure5. Maximum I_D vs Junction Temperature

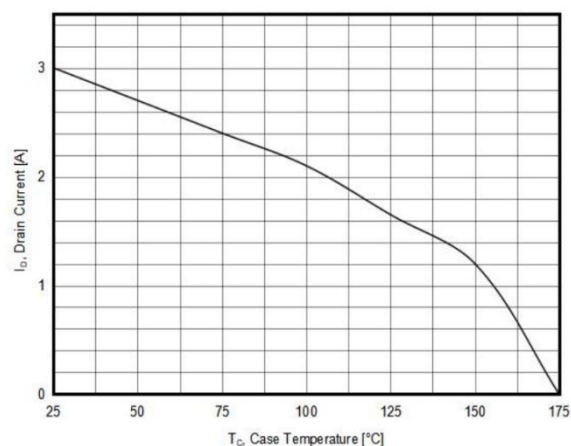
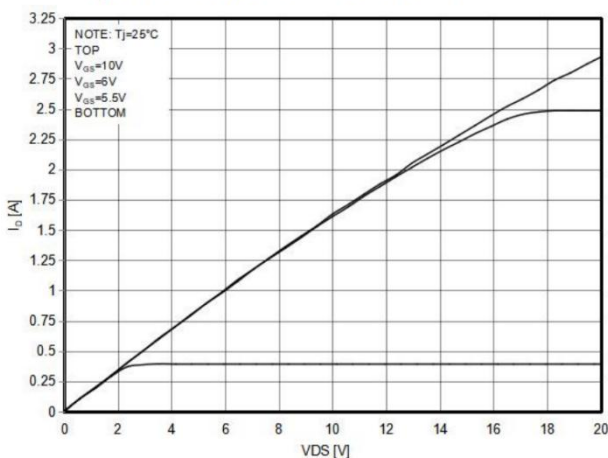


Figure6. Output characteristics



Typical Characteristics

Figure7. Capacitance

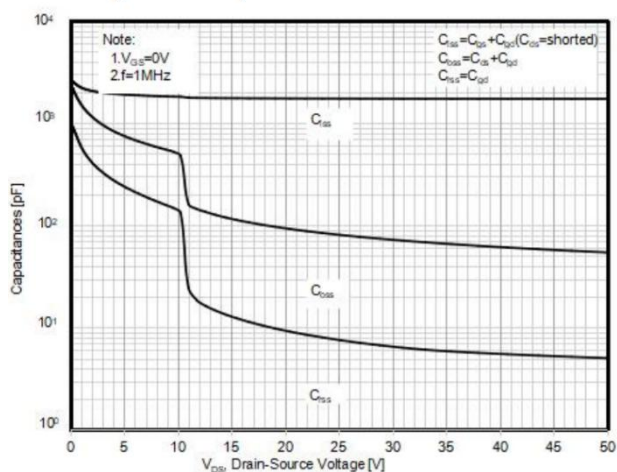


Figure8. Transfer characteristics

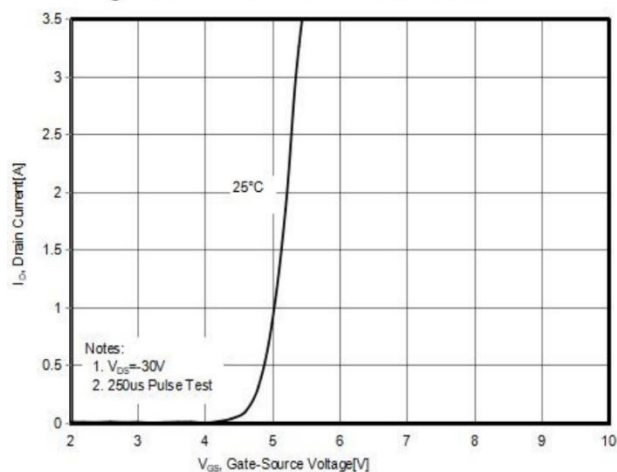


Figure9. Static drain-source on resistance

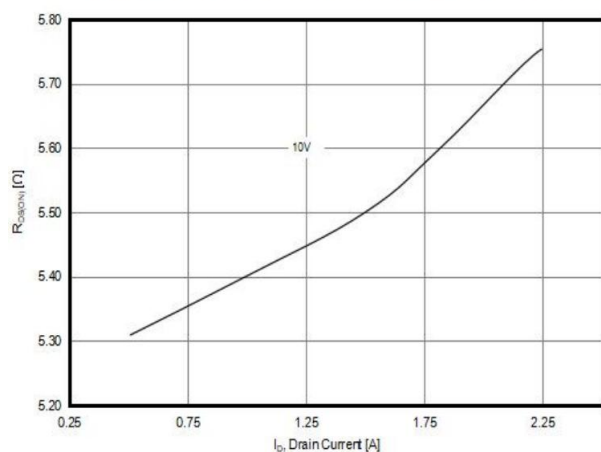
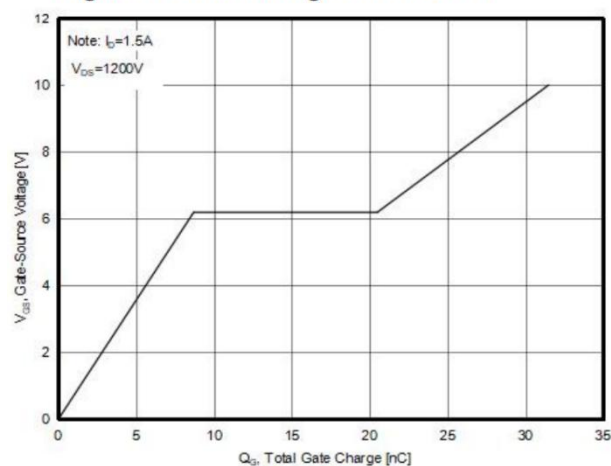
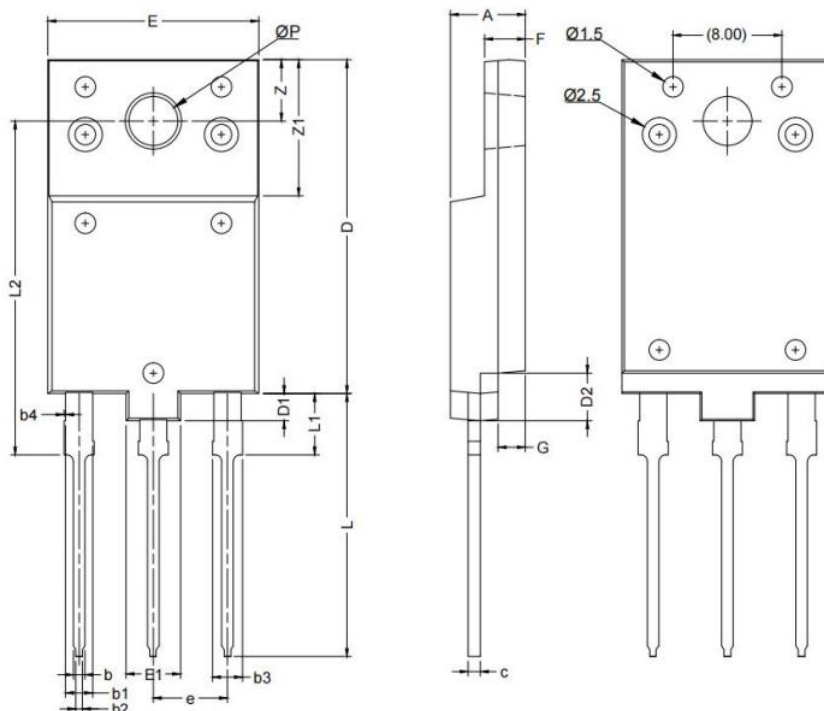


Figure10. Gate charge waveforms



TO-3PF Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	5.300	5.700	0.209	0.224
b	0.650	0.950	0.026	0.037
b4	0.000	0.200	0.000	0.008
C	0.800	1.000	0.031	0.039
D	24.200	24.800	0.953	0.976
D1	1.800	2.200	0.071	0.087
D2	3.300	3.700	0.130	0.146
E	15.300	15.700	0.602	0.618
E1	3.800	4.200	0.150	0.165
F	2.800	3.200	0.110	0.126
e	5.450 BSC		0.215 BSC	
L	19.000	19.600	0.748	0.772
L1	4.200	4.800	0.165	0.189
L2	24.200	24.800	0.953	0.976
P	3.400	3.800	0.134	0.150
Z	4.300	4.700	0.169	0.185
Z1	9.700	10.300	0.382	0.406
G	1.800	2.200	0.071	0.087
S	3.100	3.500	0.122	0.138