

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
650V	120mΩ@10V	25A

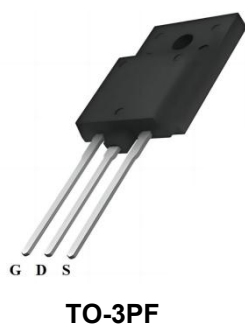
Feature

- Fast switching
- Low gate charge and $R_{DS(on)}$

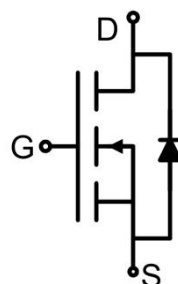
Application

- PWM Application
- Hard switched and high frequency circuits
- Power management

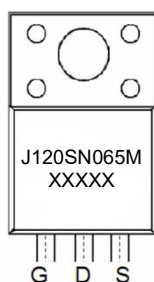
Package



Circuit diagram



Marking



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	650	V
Gate-Source Voltage	V_{GS}	± 30	V
Continuous Drain Current ($T_C=25^{\circ}\text{C}$)	I_D	25	A
Continuous Drain Current ($T_C=100^{\circ}\text{C}$)	I_D	16.7	A
Pulsed Drain Current	I_{DM}	100	A
Single Pulse Avalanche Energy ¹⁾	E_{AS}	414	mJ
Power Dissipation ($T_C=25^{\circ}\text{C}$)	P_D	196	W
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	0.64	$^{\circ}\text{C/W}$
Operating Junction Temperature	T_J	$-55 \sim +150$	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	$-55 \sim +150$	$^{\circ}\text{C}$

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

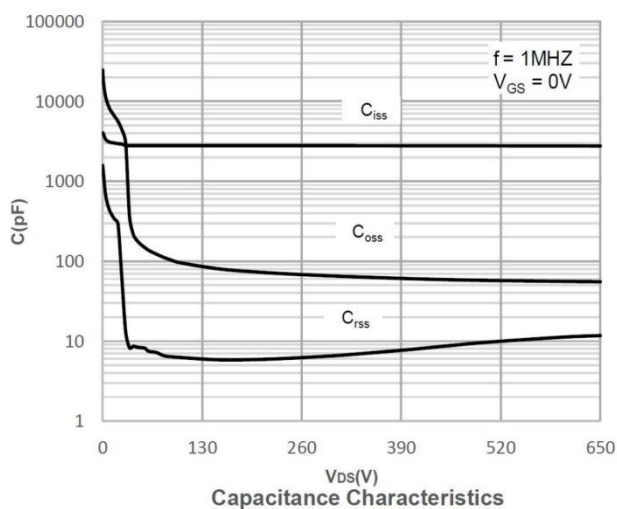
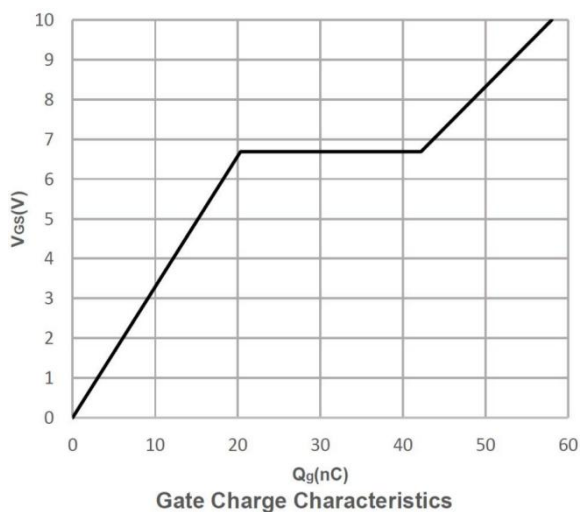
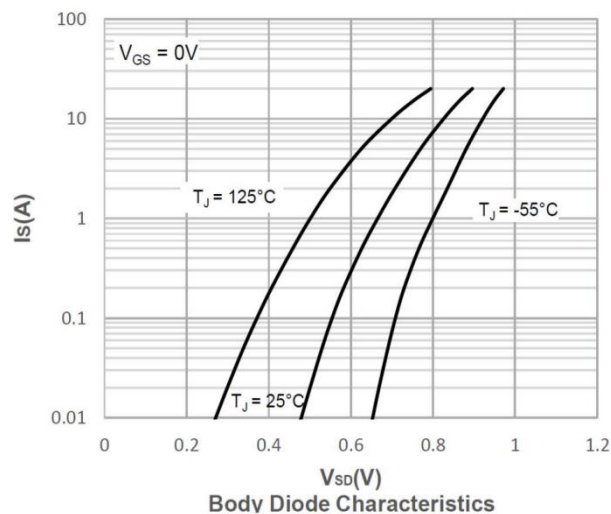
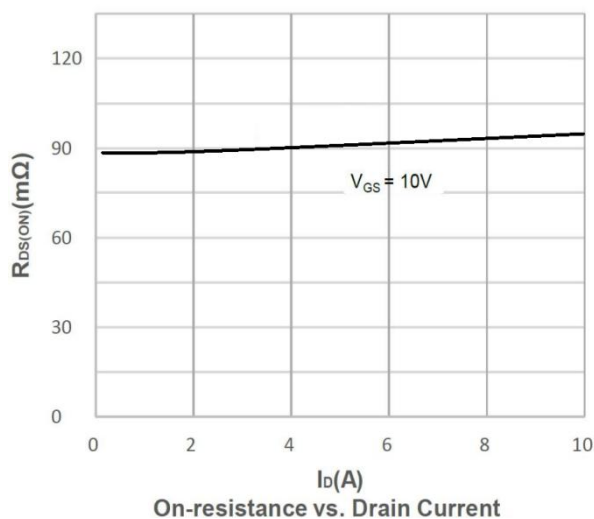
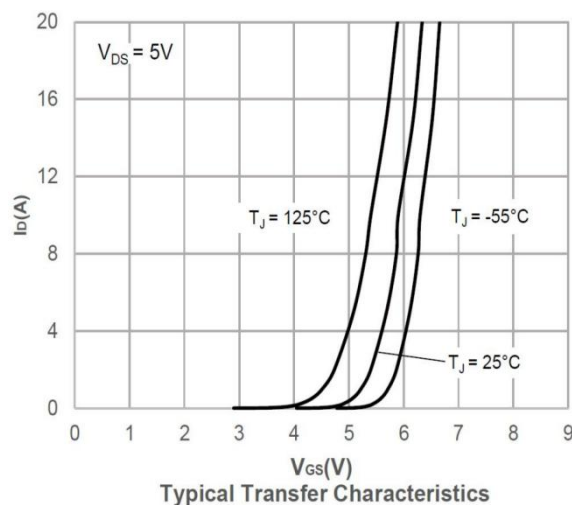
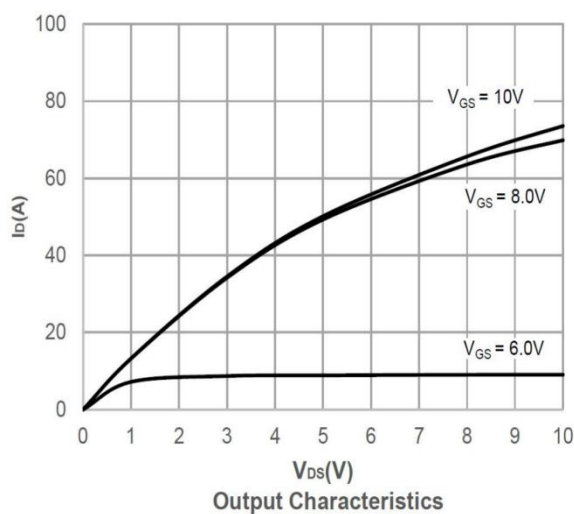
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	650			V
Zero gate voltage drain current	I_{DSS}	$V_{DS}=520V, V_{GS}=0V$			1	μA
Gate-body leakage current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 30V$			± 100	nA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2.5	3.5	4.5	V
Drain-source on-resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=10A$		96	120	m Ω
Dynamic characteristics ²⁾						
Input Capacitance	C_{iss}	$V_{DS}=100V, V_{GS}=0V, f=1MHz$		2788		pF
Output Capacitance	C_{oss}			68		
Reverse Transfer Capacitance	C_{rss}			7.4		
Total Gate Charge	Q_g	$V_{DS}=400V, V_{GS}=10V, I_D=10A$		58		nC
Gate-Source Charge	Q_{gs}			20		
Gate-Drain Charge	Q_{gd}			22		
Turn-on delay time	$t_{d(on)}$	$V_{DS}=400V, V_{GS}=10V, I_D=10A$ $R_G=2\Omega$		67		nS
Turn-on rise time	t_r			71		
Turn-off delay time	$t_{d(off)}$			165		
Turn-off fall time	t_f			46		
Source-Drain Diode characteristics						
Diode Forward Current	I_S				25	A
Diode Forward voltage	V_{SD}	$V_{GS}=0V, I_S=1A, T_J=25^{\circ}C$			1.2	V
Reverse recovery time	T_{rr}	$I_S=10A, di/dt=100 A/\mu s$		195		nS
Reverse recovery charge	Q_{rr}	$T_J=25^{\circ}C$		1264		nC

Notes:

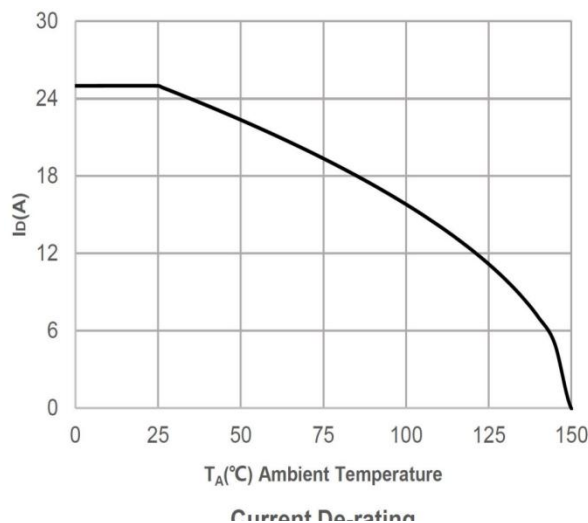
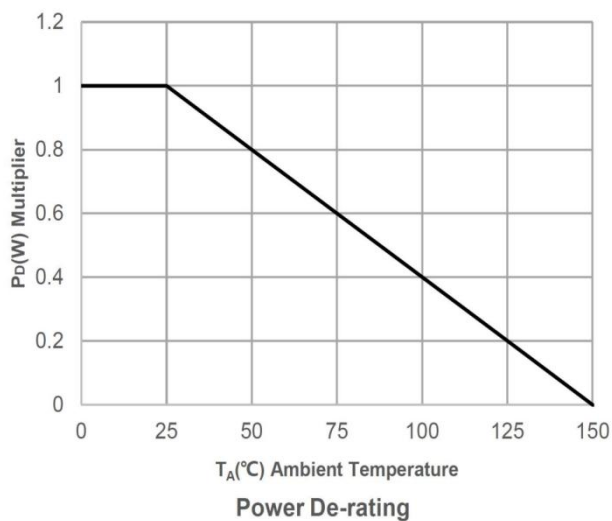
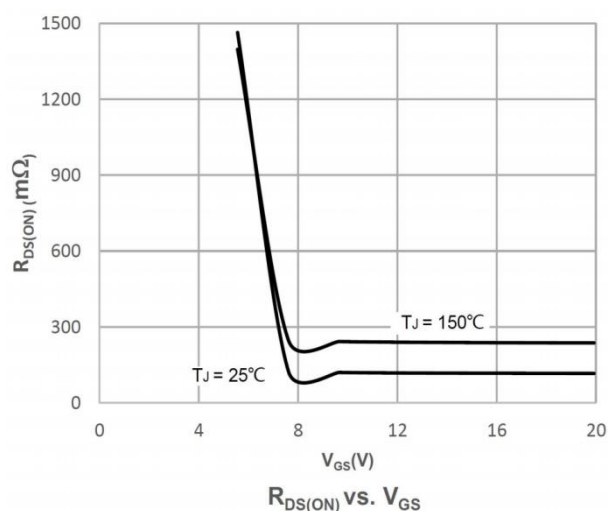
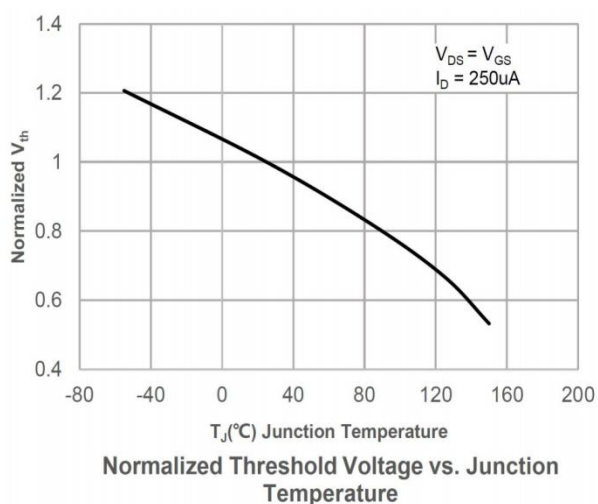
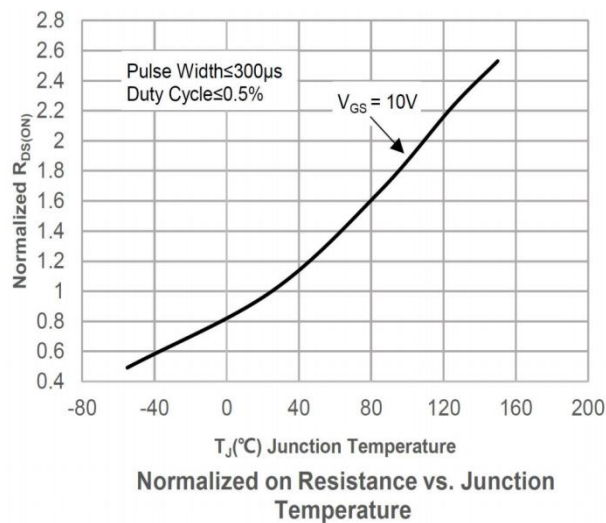
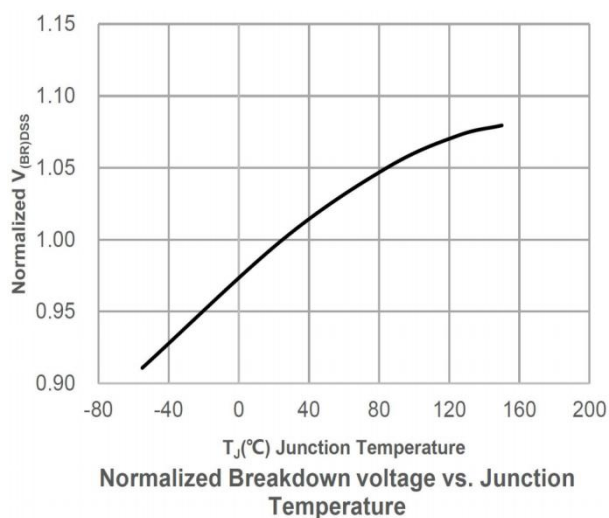
1) The test condition is $V_{DD}=150V, V_{GS}=10V, L=60mH, R_G=25\Omega$.

2) Guaranteed by design, not subject to production.

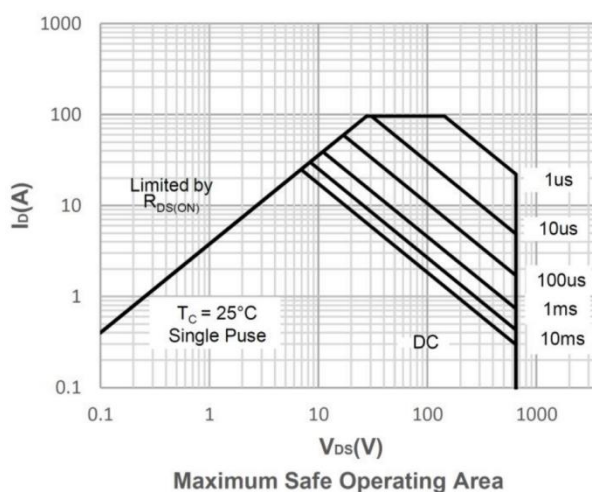
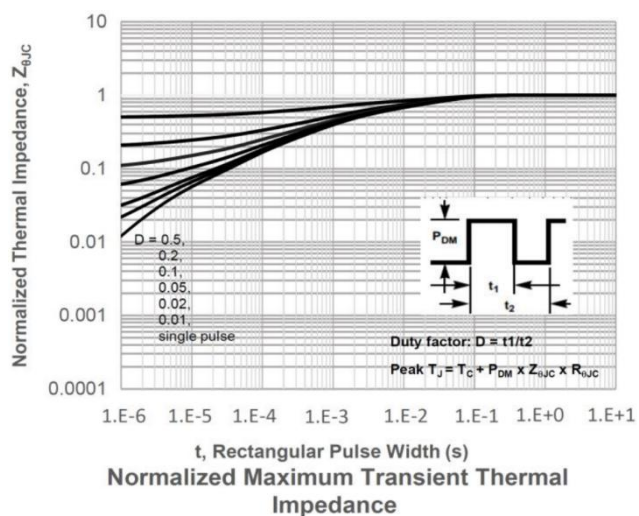
Typical Characteristics



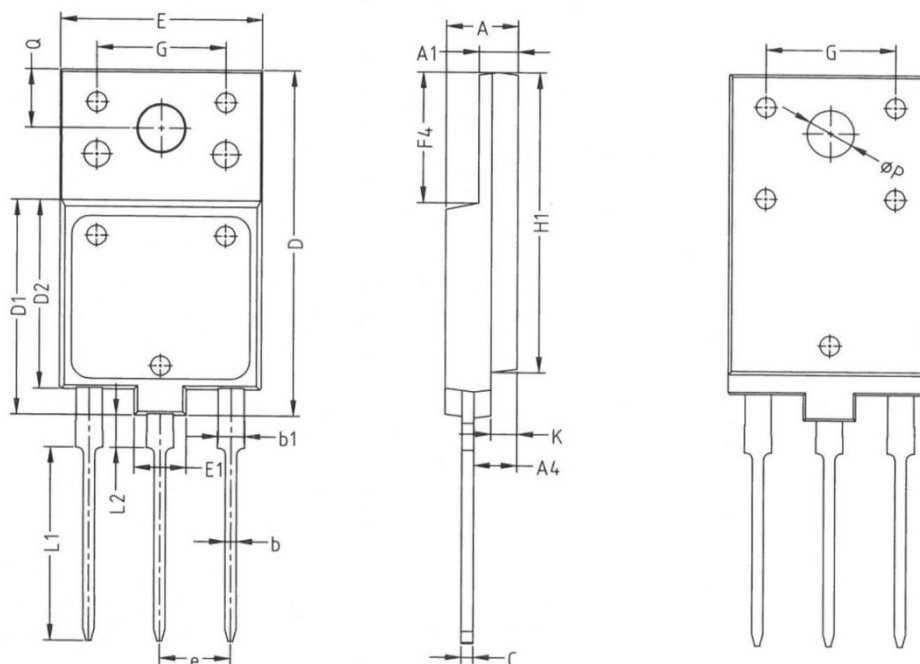
Typical Characteristics



Typical Characteristics



TO-3PF Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	5.300	5.700	0.209	0.224
A1	2.800	3.200	0.110	0.126
b	0.660	0.950	0.026	0.037
b1	1.800	2.200	0.071	0.087
A4	3.100	3.500	0.122	0.138
C	0.800	1.000	0.031	0.039
D	26.300	26.700	1.035	1.051
D1	16.300	16.700	0.642	0.657
D2	14.300	14.700	0.563	0.579
P	3.400	3.800	0.134	0.150
E	15.300	15.700	0.602	0.618
E1	3.800	4.200	0.150	0.165
e	5.150	5.750	0.203	0.226
G	9.700	10.100	0.382	0.398
Q	4.350	4.650	0.171	0.183
L1	14.600	15.000	0.575	0.591
L2	2.300	2.700	0.091	0.106
K	1.800	2.200	0.071	0.087
F4	9.800	10.200	0.386	0.402
H1	22.800	23.200	0.898	0.913
K	1.800	2.200	0.071	0.087