PTF10N65

650V/10A N-Channel Junction Power MOSFET

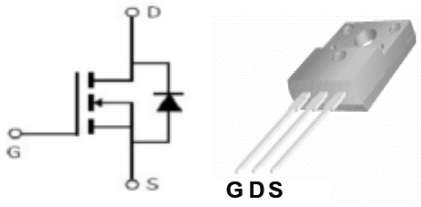
Features

- New technology for high voltage device·
- Low on-resistance and low conduction losses
- Small package
- Ultra Low Gate Charge cause lower driving requirements
- 100% Avalanche Tested

BVDSS	650	V
ID	10	A
RDSON@VGS=10V	0.76	Ω

Applications

- Power factor correction（PFC）
- Switched mode power supplies(SMPS)
- Uninterruptible Power Supply（UPS）



TO-220F

Order Information

Product	Package	Marking	Tube	Carton
PTF10N65	TO-220F	PTF10N65	50PCS	5000PCS

Absolute Maximum Ratings

Symbol	Parameter		Rating	Unit
Common Ratings (TC=25°C Unless Otherwise Noted)				
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage		650	V
V_{GS}	Gate-Source Voltage		±30	V
T_J	Maximum Junction Temperature		150	°C
T_{STG}	Storage Temperature Range		-55 to 150	°C
I_S	Diode Continuous Forward Current	TC =25°C	10	A
Mounted on Large Heat Sink				
E_{AS}	Single Pulse Avalanche Energy (Note1)		900	mJ
I_{DM}	Pulse Drain Current Tested (Sillicon Limit) (Note2)	TC =25°C	40	A
I_D	Continuous Drain current	TC =25°C	10	A
P_D	Maximum Power Dissipation	TC =25°C	39	W
$R_{\theta JC}$	Thermal Resistance Junction-to-Case (Note3)		3.2	°C/W

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Symbol	Parameter	Condition	Min.	Typ.	Max.	Unit
Static Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
$V_{(BR)DSS}$	Drain- Source Breakdown Voltage	VGS=0V ID=250μA	650	--	--	V
I_{DSS}	Zero Gate Voltage Drain current	VDS=650V,VGS=0V	--	--	1	μA
I_{GSS}	Gate-Body Leakage Current	VGS=±30V,VDS=0V	--	--	±100	nA
$V_{GS(TH)}$	Gate Threshold Voltage	VDS=VGS,ID=250μA	2	3	4	V
$R_{DS(ON)}$	Drain-Source On-State Resistance (Note4)	VGS=10V, ID=5A	--	0.76	0.85	Ω
Dynamic Electrical Characteristics @ T_J = 25°C (unless otherwise stated) (Note5)						
C_{iss}	Input Capacitance	VDS=25V, VGS=0V, F=1MHz	--	1120	--	pF
C_{oss}	Output Capacitance		--	130	--	pF
C_{rss}	Reverse Transfer Capacitance		--	4.9	--	pF
Q_g	Total Gate Charge	VDS=520V, ID=10A, VGS=10V	--	21	--	nC
Q_{gs}	Gate-Source Charge		--	7.5	--	nC
Q_{gd}	Gate-Drain Charge		--	6	--	nC
Switching Characteristics (Note5)						
$t_{d(on)}$	Turn-on Delay Time	VDD=300V, ID=10A, VGS=10V RG=25Ω	--	38	--	nS
t_r	Turn-on Rise Time		--	70	--	nS
$t_{d(off)}$	Turn-off Delay Time		--	53	--	nS
t_f	Turn-off Fall Time		--	35	--	nS
Source- Drain Diode Characteristics@ TJ = 25°C (unless otherwise stated)						
V_{SD}	Forward on voltage	IS=10A,VGS=0V	--	0.85	1.4	V

Note:

1. Limited by TJmax, starting TJ = 25° C, RG = 25Ω, VD =50V, VGS =10V. Part not recommended for use above this value.
2. Repetitive Rating: Pulse width limited by maximum junction temperature.
3. Surface Mounted on FR4 Board, t ≤ 10 sec.
4. Pulse Test: pulse width ≤ 300 us, duty cycle ≤ 2%.
5. Guranteed by design, not subject to production testing.

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Typical Characteristics

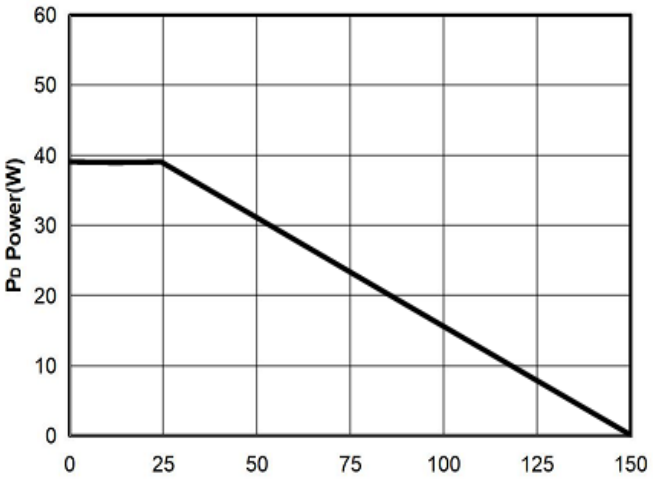

Figure1：T_J Junction Temperature（°C）

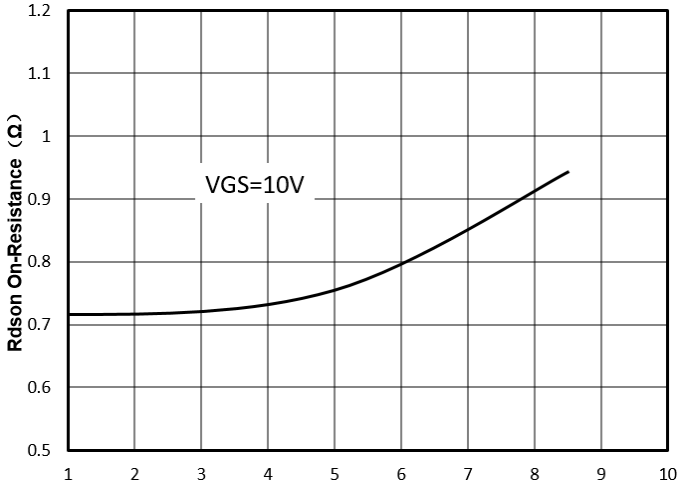

Figure2：I_D Drain Current（A）

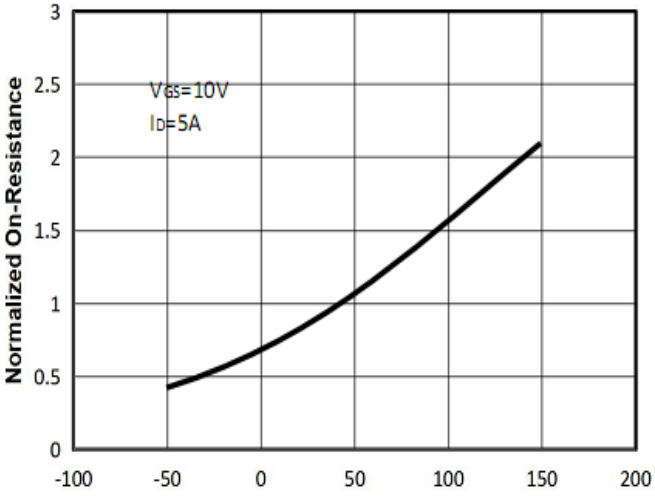

Figure3：T_J Junction Temperature（°C）

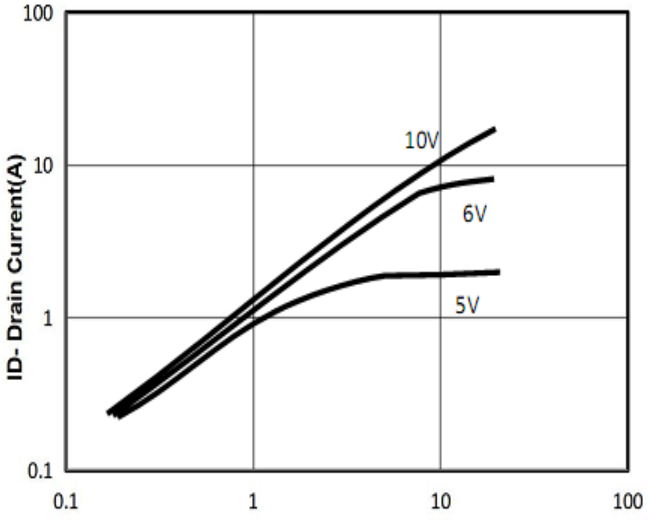

Figure4：V_{DS} Drain-Source Voltage（V）

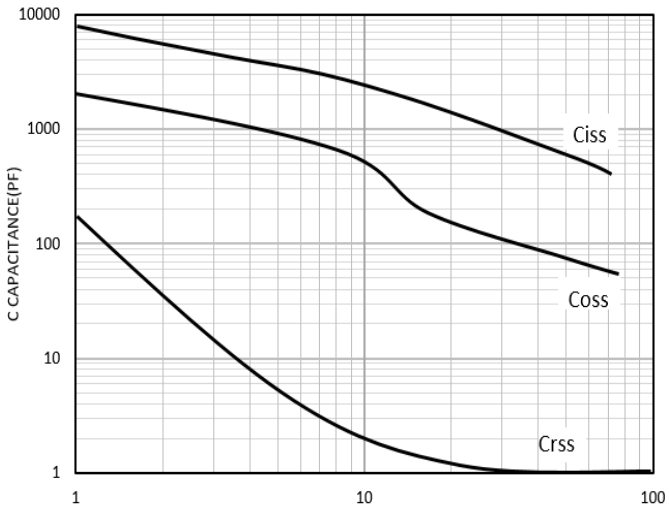

Figure5：V_{DS} Drain-Source Voltage（V）

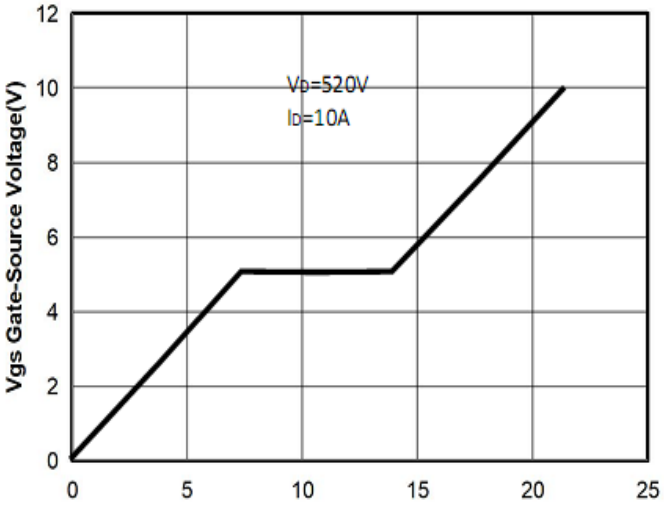

Figure6：Qg Gate Charge（nC）

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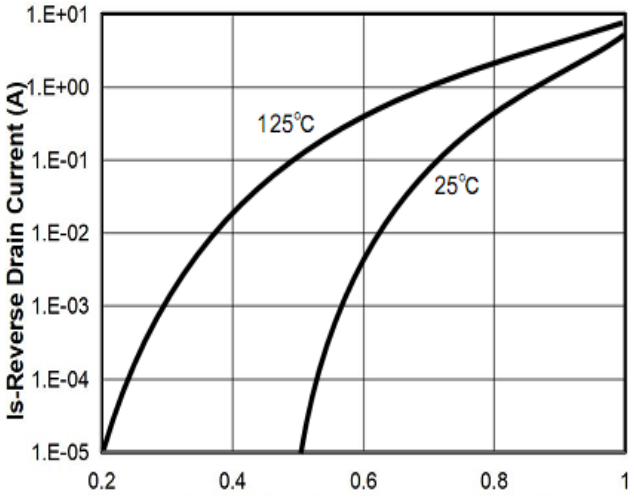

Figure7：Vsd Source-Drain Voltage（V）

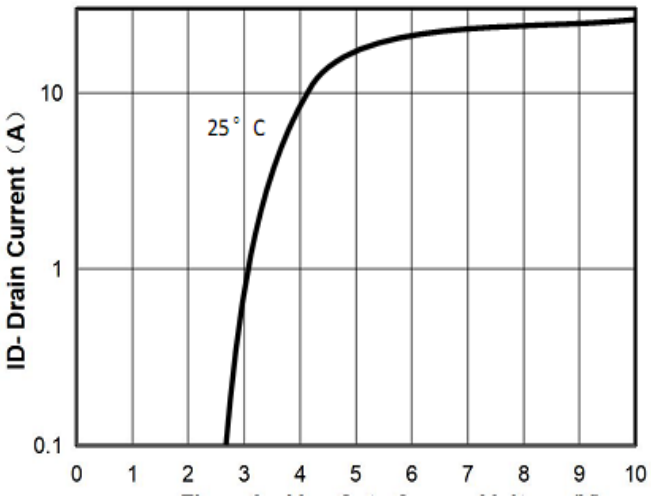

Figure8：Vgs Gate-Source Voltage（V）

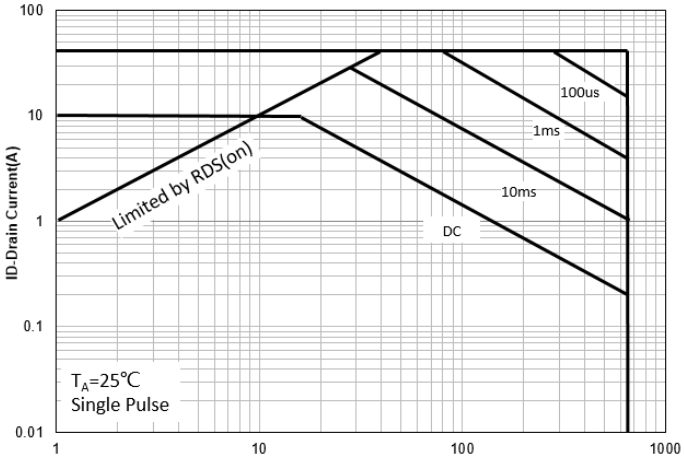

Figure9：VDS Drain -Source Voltage（V）

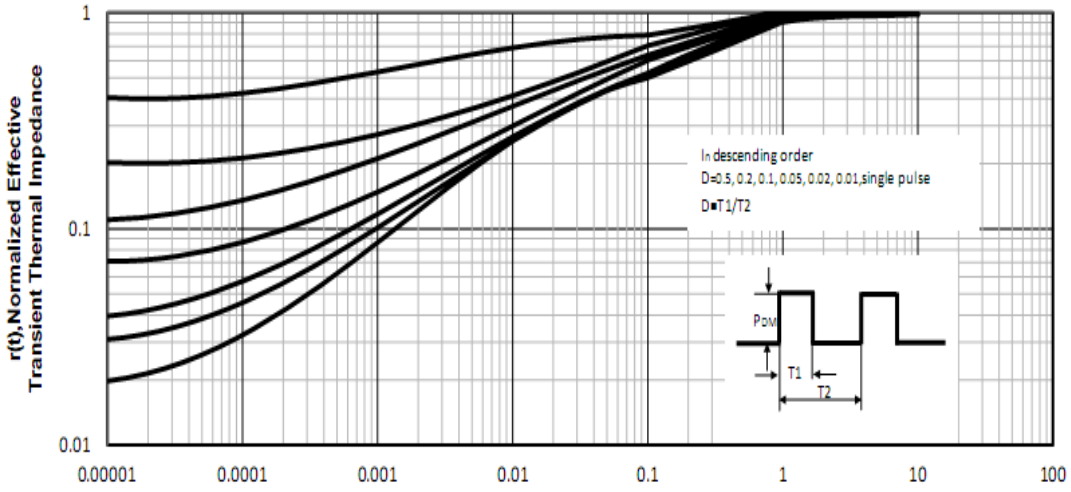

Figure10：Square Wave Pulse Duration（sec）

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Test Circuit and Waveform:

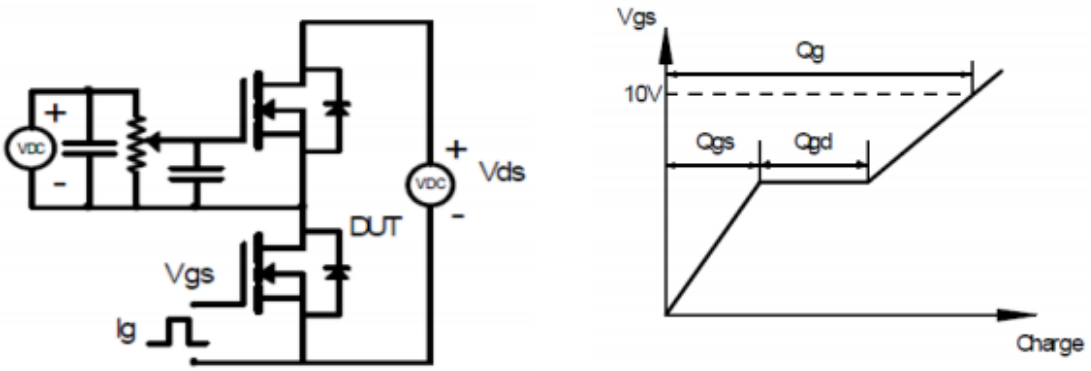

Figure A Gate Charge Test Circuit &Waveforms

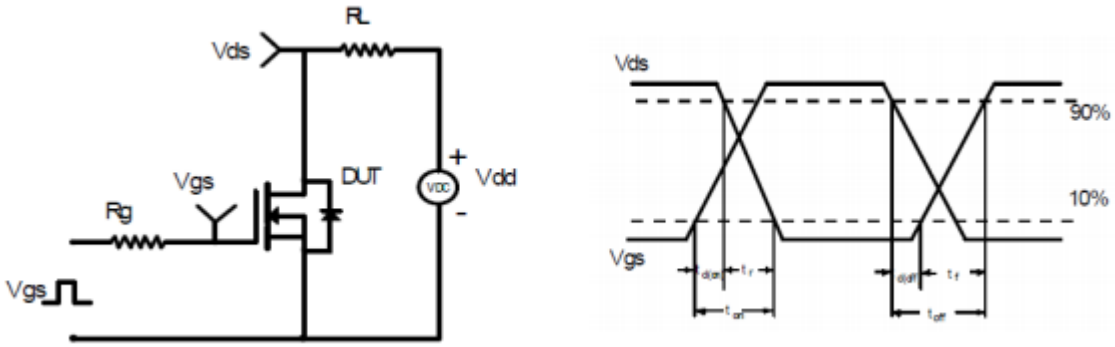

Figure B Switching Test Circuit & Waveforms

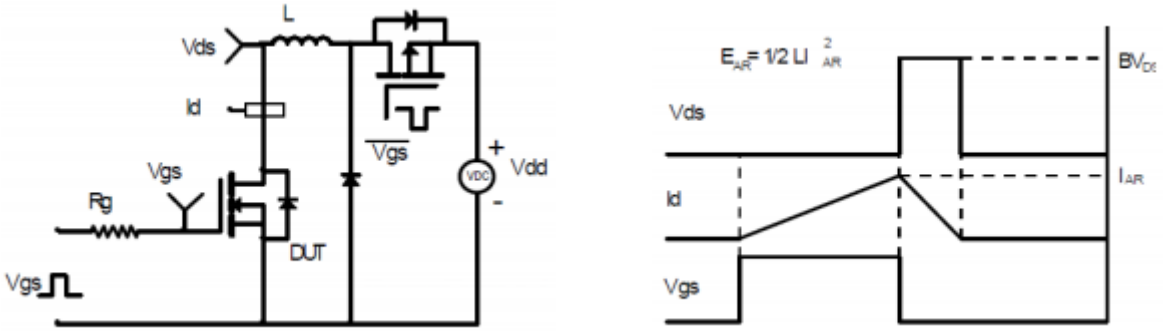

Figure C Unclamped Inductive Switching Circuit & Waveforms

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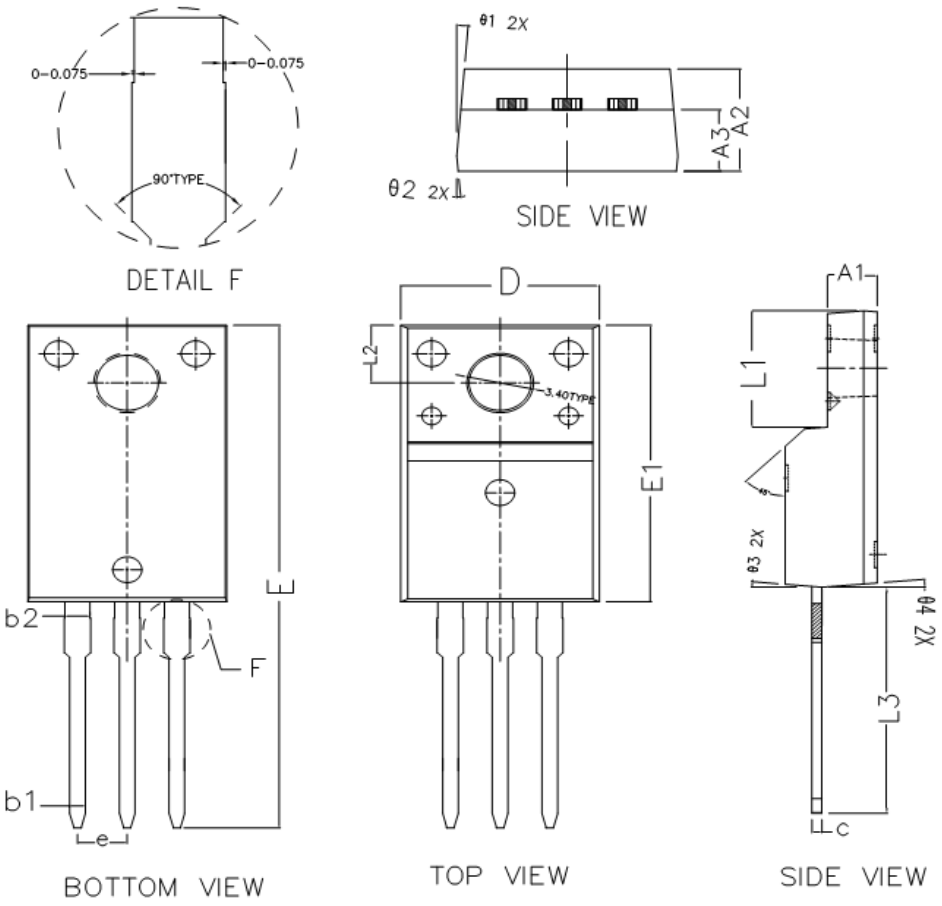
TO-220F Package Outline Dimensions (Units: mm)



COMMON DIMENSIONS (UNITS OF MEASURE IS mm)			
	MIN	NORMAL	MAX
A1	2.440	2.540	2.640
A2	4.600	4.700	4.800
A3	2.730	2.830	2.930
b1	0.750	0.800	0.850
b2	1.230	1.280	1.330
c	0.450	0.500	0.550
D	10.060	10.160	10.260
E	28.650	28.850	29.050
E1	15.770	15.870	15.970
e	2.54TYPE		
L1	6.68REF		
L2	3.30REF		
L3	12.830	12.980	13.130
θ1	5° TYPE		
θ2	5° TYPE		
θ3	5° TYPE		
θ4	5° TYPE		