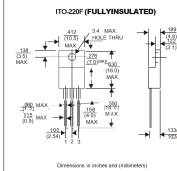


Features

- 650V, 20A
- $R_{DS(on)} = 0.35\Omega$ (Typ.) @ $V_{GS} = 10V$, $I_D = 10A$
- Fast Switching
- Improved dv/dt Capability
- 100% Avalanche Tested

Application

- Switch Mode Power Supply(SMPS)
- Uninterruptible Power Supply(UPS)
- Power Factor Correction (PFC)



ABSOLUTE MAXIMUM RATINGS (Tc = 25°C unless otherwise specified)

Parameter	Symbol	20N65F	Units
Drain-Source Voltage	V_{DS}	650	V
Gate-Source Voltage	V_{GS}	±30	V
Continuous Drain Current	I_D	20	A
Pulsed Drain Current ⁽¹⁾	I_{DM}	80	A
Single Pulsed Avalanche Energy ⁽²⁾	E_{AS}	167	mJ
Power Dissipation	P_D	416	W
Thermal Resistance, Junction to Case	$R_{\theta JC}$	0.75	°C/W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	60	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

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20N65F

Electrical Characteristics (Tc=25°C unless otherwise specified)

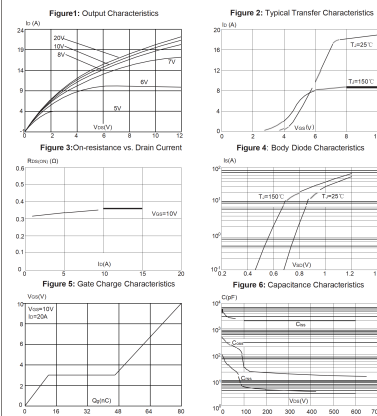
Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristics						
$V_{DS(BOSS)}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	650	-	-	V
I_{SSS}	Zero Gate Voltage Drain Current	$V_{DS}=650V, V_{GS}=0V, T_J=25^\circ C$	-	-	1	μA
I_{SSS}	Gate to Body Leakage Current	$V_{GS}=+0V, V_{DS}=+30V$	-	-	±100	nA
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	2	3	4	V
$R_{DS(on)}$	Static Drain-Source on-Resistance ⁽¹⁾	$V_{GS}=10V, I_D=10A$	-	0.35	0.45	Ω
Dynamic Characteristics						
C_{iss}	Input Capacitance	$V_{DS}=25V, V_{GS}=0V, f=1MHz$	-	2978	-	pF
C_{oss}	Output Capacitance	$V_{GS}=10V, V_{DS}=25V, f=1MHz$	-	291	-	pF
C_{rds}	Reverse Transfer Capacitance	$V_{GS}=10V, V_{DS}=25V, f=1MHz$	-	40	-	pF
Q_g	Total Gate Charge	$V_{DS}=520V, I_D=20A$	-	80	-	nC
Q_{gs}	Gate-Source Charge	$V_{DS}=520V, I_D=20A$	-	12	-	nC
Q_{gd}	Gate-Drain(Miller) Charge	$V_{DS}=520V, I_D=20A$	-	34	-	nC
Switching Characteristics						
$t_{d(on)}$	Turn-on Delay Time	$V_{DS}=325V, I_D=20A, R_{\theta JA}=25^\circ C$	-	37	-	ns
t_r	Turn-on Rise Time	$V_{DS}=325V, I_D=20A, R_{\theta JA}=25^\circ C$	-	66	-	ns
$t_{d(off)}$	Turn-off Delay Time	$V_{DS}=325V, I_D=20A, R_{\theta JA}=25^\circ C$	-	173	-	ns
t_f	Turn-off Fall Time	$V_{DS}=325V, I_D=20A, R_{\theta JA}=25^\circ C$	-	84	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I_S	Maximum Continuous Drain to Source Diode Forward Current	$T_J=25^\circ C$	-	-	20	A
I_{SM}	Maximum Pulsed Drain to Source Diode Forward Current	$T_J=25^\circ C$	-	-	80	A
V_{SD}	Drain to Source Diode Forward Voltage	$V_{GS}=0V, I_S=20A$	-	-	1.4	V
t_r	Reverse Recovery Time	$V_{GS}=0V, I_S=20A$	-	450	-	ns
Q_{rr}	Reverse Recovery Charge	$dI/dt=100A/\mu s$	-	7.1	-	μC

Notes: 1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. $I_{AS}=16A, V_{GS}=50V, R_{\theta JA}=25^\circ C$, Starting $T_J=25^\circ C$
3. Pulse Test: Pulse Width<350 μs , Duty Cycles<1%

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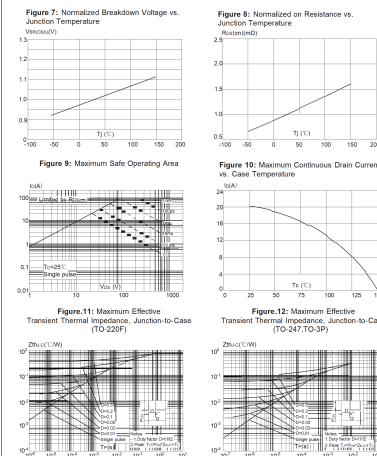
RATING AND CHARACTERISTIC CURVES (20N65F)



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RATING AND CHARACTERISTIC CURVES (20N65F)



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