



## PJP10NA65A / PJF10NA65A / PJB10NA65

### 650V N-Channel MOSFET

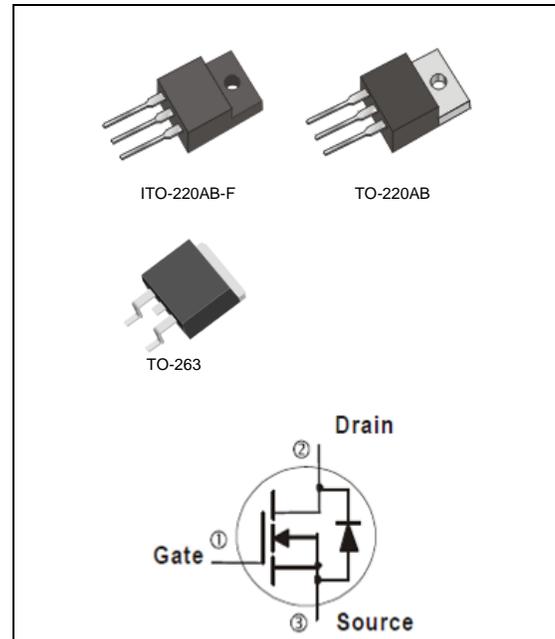
Voltage	650 V	Current	10 A
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#### Features

- $R_{DS(ON)}, V_{GS}@10V, I_D@5A < 0.85\Omega$
- High switching speed
- Improved dv/dt capability
- Low Gate Charge
- Low reverse transfer capacitance
- Lead free in compliance with EU RoHS 2011/65/EU directive.
- Green molding compound as per IEC61249 Std.  
(Halogen Free)

#### Mechanical Data

- Case : TO-220AB, ITO-220AB-F, TO-263 Package
- Terminals : Solderable per MIL-STD-750, Method 2026



### Maximum Ratings and Thermal Characteristics ( $T_A=25^\circ\text{C}$ unless otherwise noted)

PARAMETER		SYMBOL	TO-220AB / TO-263	ITO-220AB-F	UNITS
Drain-Source Voltage		$V_{DS}$	650		V
Gate-Source Voltage		$V_{GS}$	$\pm 30$		V
Continuous Drain Current		$I_D$	10		A
Pulsed Drain Current		$I_{DM}$	40		A
Single Pulse Avalanche Energy <sup>(Note 1)</sup>		$E_{AS}$	844		mJ
Power Dissipation	$T_C=25^\circ\text{C}$	$P_D$	156	50	W
	Derate above $25^\circ\text{C}$		1.25	0.4	W/ $^\circ\text{C}$
Operating Junction and Storage Temperature Range		$T_J, T_{STG}$	-55~150		$^\circ\text{C}$
Typical Thermal resistance					
-	Junction to Case	$R_{\theta JC}$	0.8	2.5	$^\circ\text{C}/\text{W}$
-	Junction to Ambient	$R_{\theta JA}$	62.5	120	

- Limited only By Maximum Junction Temperature



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

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
<b>Static</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS}=0V, I_D=250\mu A$	650	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2	3	4	V
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=5A$	-	0.63	0.85	$\Omega$
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=650V, V_{GS}=0V$	-	-	1.0	$\mu A$
Gate-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 30V, V_{DS}=0V$	-	-	$\pm 100$	nA
Diode Forward Voltage	$V_{SD}$	$I_S=10A, V_{GS}=0V$	-	0.85	1.4	V
<b>Dynamic</b> (Note 4)						
Total Gate Charge	$Q_g$	$V_{DS}=520V, I_D=10A,$ $V_{GS}=10V$ (Note 2,3)	-	38	-	nC
Gate-Source Charge	$Q_{gs}$		-	8	-	
Gate-Drain Charge	$Q_{gd}$		-	12	-	
Input Capacitance	$C_{iss}$	$V_{DS}=25V, V_{GS}=0V,$ $f=1.0\text{MHz}$	-	1769	-	pF
Output Capacitance	$C_{oss}$		-	136	-	
Reverse Transfer Capacitance	$C_{rss}$		-	55	-	
<b>Switching</b>						
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=325V, I_D=10A,$ $R_G=25\Omega$ (Note 2,3)	-	19	-	ns
Turn-On Rise Time	$t_r$		-	29	-	
Turn-Off Delay Time	$t_{d(off)}$		-	107	-	
Turn-Off Fall Time	$t_f$		-	38	-	
<b>Drain-Source Diode</b>						
Maximum Continuous Drain-Source Diode Forward Current	$I_S$	---	-	-	9.3	A
Maximum Pulsed Drain-Source Diode Forward Current	$I_{SM}$	---	-	-	37.2	A
Reverse Recovery Time	$t_{rr}$	$V_{GS}=0V, I_S=10A$	-	345	-	ns
Reverse Recovery Charge	$Q_{rr}$	$di_f/dt=100A/\mu s$ (Note 2)	-	4.83	-	$\mu C$

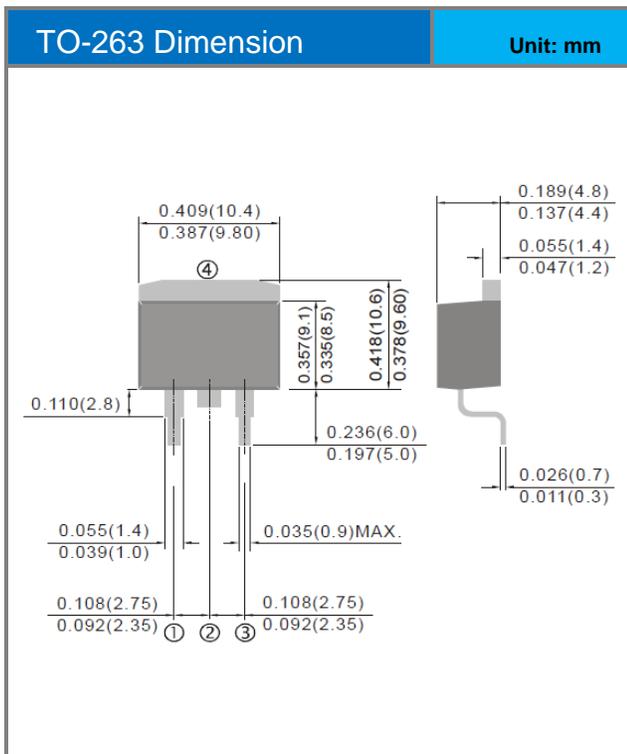
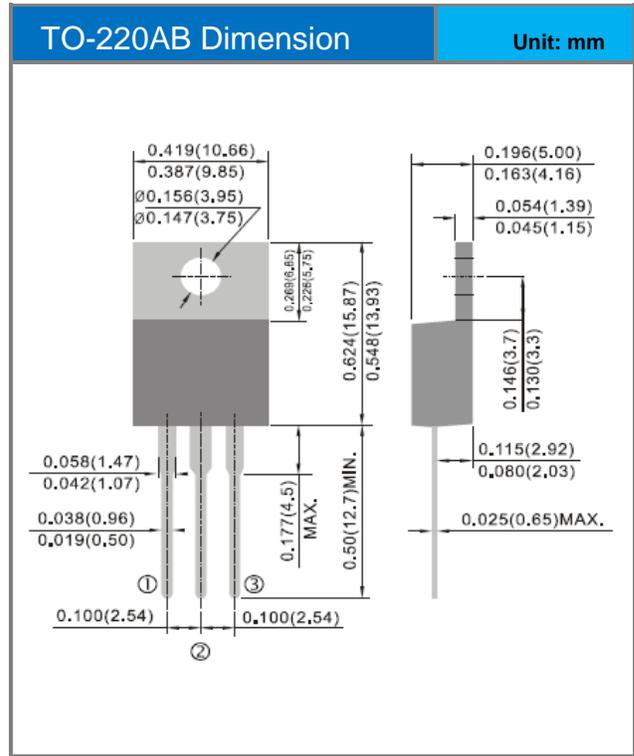
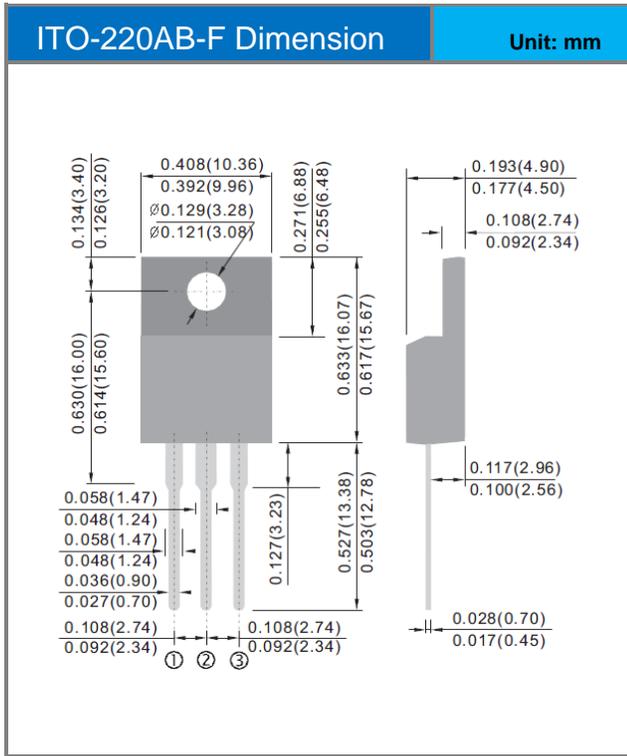
**NOTES :**

1.  $L=30\text{mH}, I_{AS}=7.5A, V_{DD}=50V, R_G=25\text{ohm}$ , Starting  $T_J=25^\circ\text{C}$
2. Pulse width  $\leq 300\mu s$ , Duty cycle  $\leq 2\%$
3. Essentially independent of operating temperature typical characteristics.
4. Guaranteed by design, not subject to production testing



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**Packaging Information**





**PJP10NA65A / PJF10NA65A / PJB10NA65**

**PART NO PACKING CODE VERSION**

Part No Packing Code	Package Type	Packing type	Marking	Version
PJP10NA65A_T0_00001	TO-220AB	50pcs / Tube	10NA65A	Halogen free
PJF10NA65A_T0_00001	ITO-220AB-F	50pcs / Tube	10NA65A	Halogen free
PJB10NA65A_L2_00001	TO-263	800pcs / 13" reel	10NA65A	Halogen free



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