

# PJP10NA65A / PJF10NA65A / PJB10NA65

## 650V N-Channel MOSFET

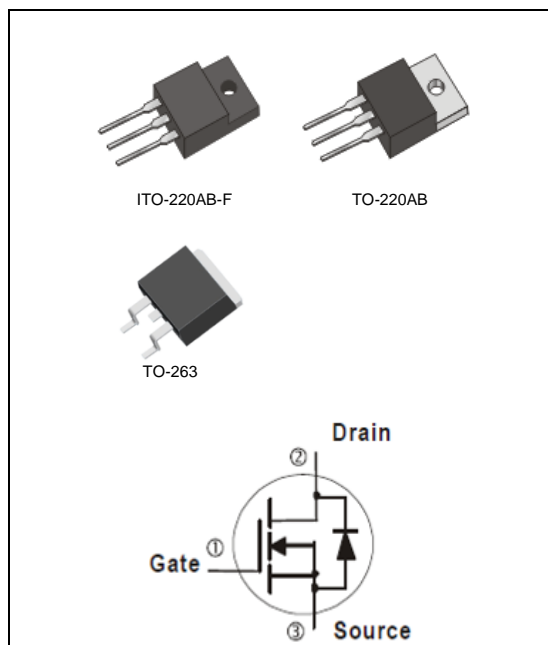
Voltage	650 V	Current	10 A
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### Features

- $R_{DS(ON)}, V_{GS}@10V, I_D@5A < 0.85\Omega$
- 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 (Note 1)		$E_{AS}$	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	$^\circ\text{C/W}$
- 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)

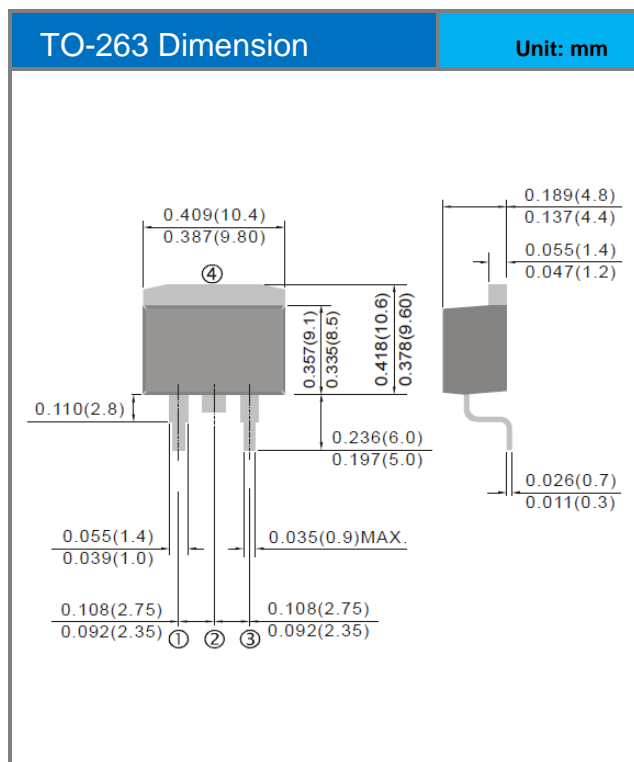
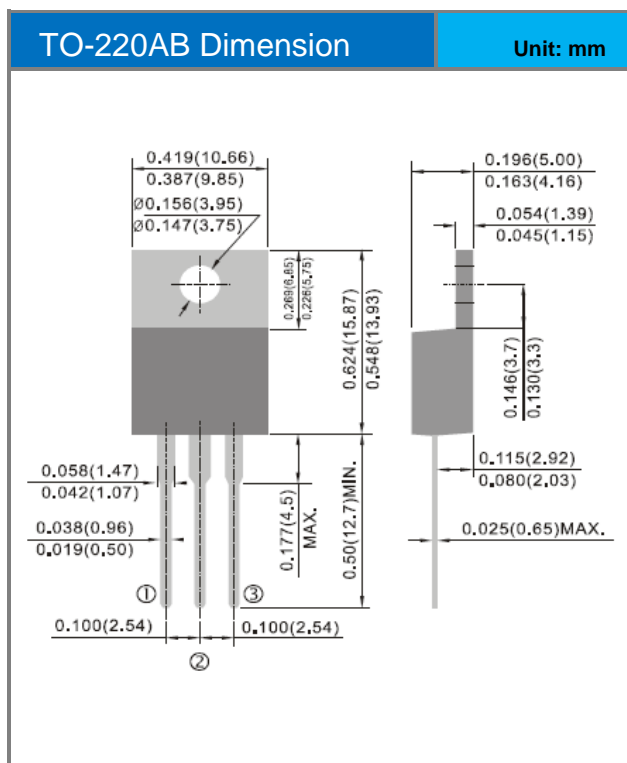
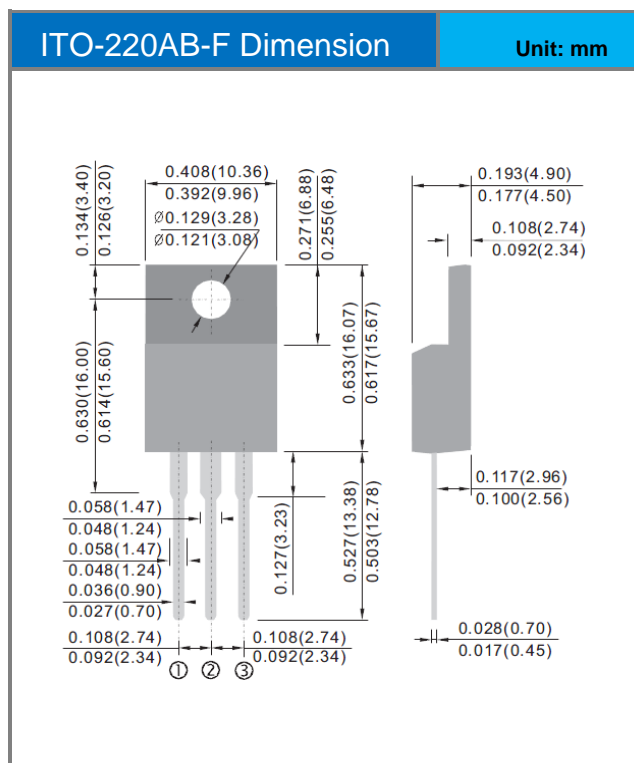
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
Static						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =250uA	650	-	-	V
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250uA	2	3	4	V
Drain-Source On-State Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =5A	-	0.63	0.85	Ω
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =650V, V <sub>GS</sub> =0V	-	-	1.0	uA
Gate-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±30V, V <sub>DS</sub> =0V	-	-	±100	nA
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =10A, V <sub>GS</sub> =0V	-	0.85	1.4	V
Dynamic (Note 4)						
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =520V, I <sub>D</sub> =10A, V <sub>GS</sub> =10V (Note 2,3)	-	38	-	nC
Gate-Source Charge	Q <sub>gs</sub>		-	8	-	
Gate-Drain Charge	Q <sub>gd</sub>		-	12	-	
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =25V, V <sub>GS</sub> =0V, f=1.0MHZ	-	1769	-	pF
Output Capacitance	C <sub>oss</sub>		-	136	-	
Reverse Transfer Capacitance	C <sub>rss</sub>		-	55	-	
Switching						
Turn-On Delay Time	td <sub>(on)</sub>	V <sub>DD</sub> =325V, I <sub>D</sub> =10A, R <sub>G</sub> =25Ω (Note 2,3)	-	19	-	ns
Turn-On Rise Time	t <sub>r</sub>		-	29	-	
Turn-Off Delay Time	td <sub>(off)</sub>		-	107	-	
Turn-Off Fall Time	t <sub>f</sub>		-	38	-	
Drain-Source Diode						
Maximum Continuous Drain-Source Diode Forward Current	I <sub>S</sub>	---	-	-	9.3	A
Maximum Pulsed Drain-Source Diode Forward Current	I <sub>SM</sub>	---	-	-	37.2	A
Reverse Recovery Time	trr	V <sub>GS</sub> =0V, I <sub>S</sub> =10A	-	345	-	ns
Reverse Recovery Charge	Qrr	dl <sub>F</sub> / dt=100A/us (Note 2)	-	4.83	-	uC

### 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



## **PJP10NA65A / PJF10NA65A / PJB10NA65**

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