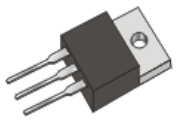
PJD70N06 / PJP70N06

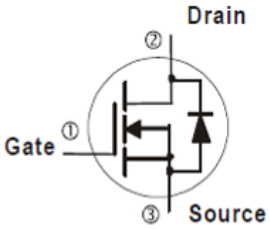
60V N-Channel Enhancement Mode MOSFET

Voltage	60 V	Current	70 A



TO-220AB

TO-252AA



Features

- $R_{DS(ON)}$, V_{GS}@10V,I_D@20A<8.5mΩ
- High switching speed
- Low Gate Charge
- Lead free in compliance with EU RoHS2.0 (2011/65/EU & 2015/865/EU directive)
- Green molding compound as per IEC61249 Std.. (Halogen Free)

Mechanical Data

- Case: TO-252AA, TO-220AB Package
- Terminals: Solderable per MIL-STD-750, Method 2026

Maximum Ratings and Thermal Characteristics (T_A=25°C unless otherwise noted)

PARAMETER		SYMBOL	TO-220AB	TO-252AA	UNITS
Drain-Source Voltage		V_{DS}	60		V
Gate-Source Voltage		V_{GS}	±25		V
Continuous Drain Current	T_C=25°C	I_D	70		A
	T_C=100°C		44		
Pulsed Drain Current	T_C=25°C	I_{DM}	180		
Power Dissipation	T_C=25°C	P_D	100	83	W
	T_C=100°C		40	33	
Single Pulse Avalanche Energy (Note 6)		E_{AS}	101		mJ
Operating Junction and Storage Temperature Range		T_J,T_{STG}	-55~150		°C
Typical Thermal Resistance					°C/W
- Junction to Case		$R_{\theta JC}$	1.25	1.5	
- Junction to Ambient		$R_{\theta JA}$	62.5	110	

- Limited only By Maximum Junction Temperature

PJD70N06 / PJP70N06

Electrical Characteristics (T_A=25°C unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
Static						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V,I_D=250uA	60	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250uA	2.0	3.0	4.0	
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS}=10V,I_D=20A	-	7	8.5	mΩ
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=48V,V_{GS}=0V	-	-	1.0	uA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±25V,V_{DS}=0V	-	-	±100	nA
Dynamic (Note 7)						
Total Gate Charge	Q_g	V_{DS}=30V, I_D=30A, V_{GS}=10V (Note 2,3)	-	71	-	nC
Gate-Source Charge	Q_{gs}		-	16	-	
Gate-Drain Charge	Q_{gd}		-	26	-	
Input Capacitance	Ciss	V_{DS}=30V, V_{GS}=0V, f=1.0MHZ	-	3116	-	pF
Output Capacitance	Coss		-	317	-	
Reverse Transfer Capacitance	Crss		-	214	-	
Turn-On Delay Time	$td_{(on)}$	V_{DS}=30V, I_D=30A, V_{GS}=10V, R_G=25Ω (Note 2,3)	-	20	-	ns
Turn-On Rise Time	t_r		-	100	-	
Turn-Off Delay Time	$td_{(off)}$		-	66	-	
Turn-Off Fall Time	t_f		-	84	-	
Drain-Source Diode						
Maximum Continuous Drain-Source Diode Forward Current	I_S	---	-	-	70	A
Diode Forward Voltage	V_{SD}	I_S=1A,V_{GS}=0V	-	0.8	1.3	V

NOTES :

1. Pulse width≤300us, Duty cycle≤2%
2. Essentially independent of operating temperature typical characteristics.
3. Repetitive rating, pulse width limited by junction temperature TJ(MAX)=150°C. Ratings are based on low frequency and duty cycles to keep initial TJ =25°C.
4. The maximum current rating is package limited.
5. $R_{\Theta JA}$ is the sum of the junction-to-case and case-to-ambient thermal resistance where the case thermal reference is defined as the solder mounting surface of the drain pins. Mounted on a 1 $inch^2$ with 2oz.square pad of copper.
6. The test condition is L=0.1mH, I_{AS}=45A, R_G=25ohm, Starting T_J=25°C
7. Guaranteed by design, not subject to production testing.

PJD70N06 / PJP70N06

TYPICAL CHARACTERISTIC CURVES

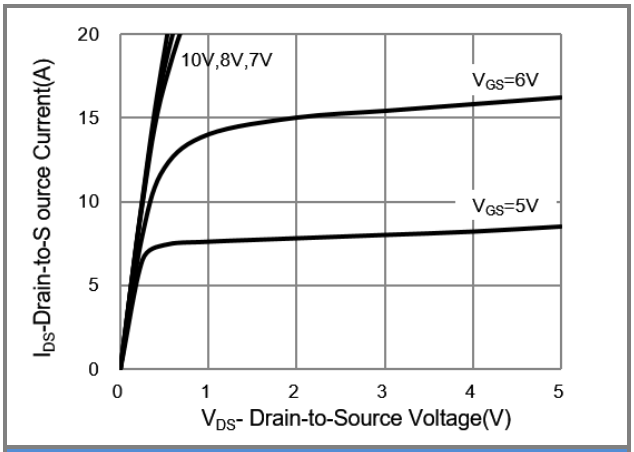


Fig.1 Output Characteristics

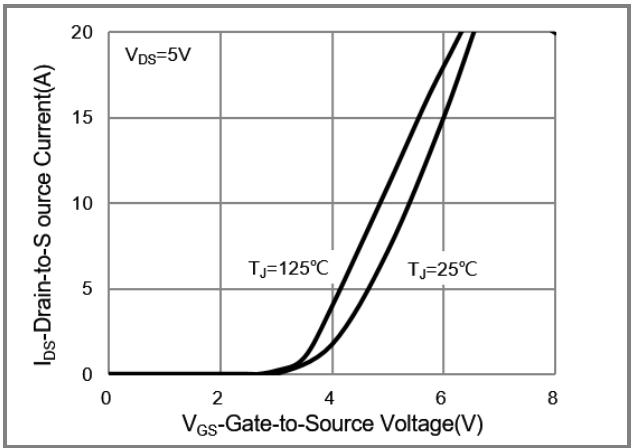


Fig.2 Transfer Characteristics

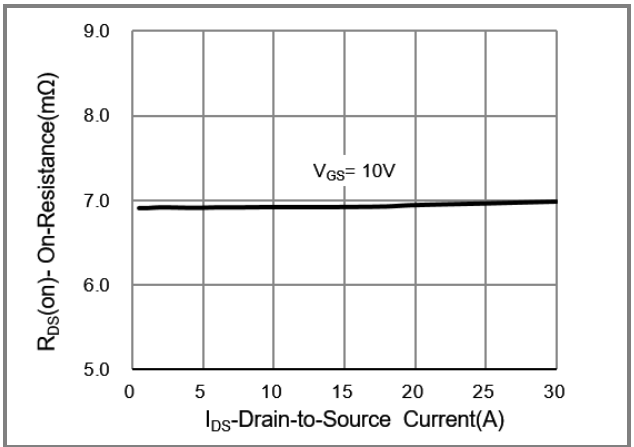


Fig.3 On-Resistance vs. Drain Current

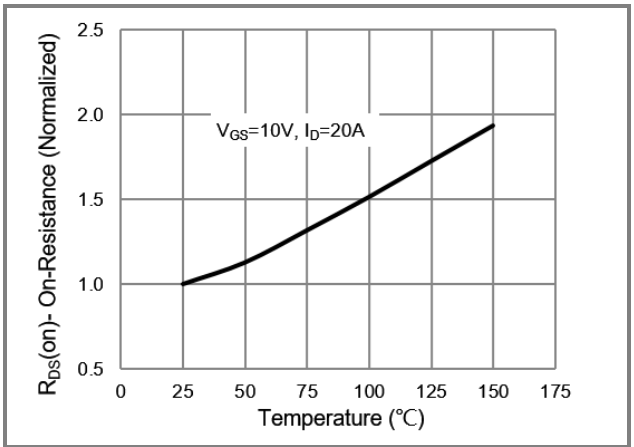


Fig.4 On-Resistance vs. Junction temperature

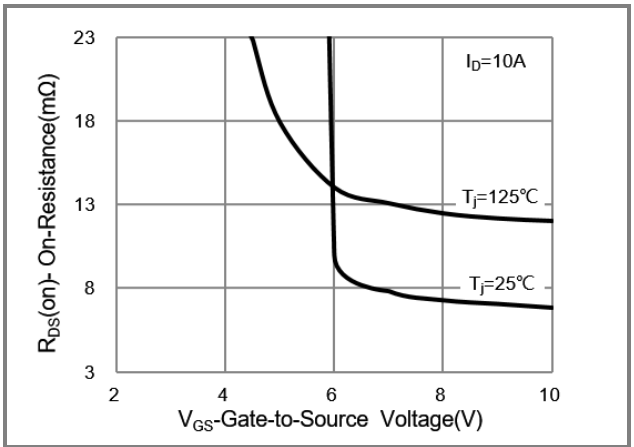


Fig.5 On-Resistance Variation with VGS.

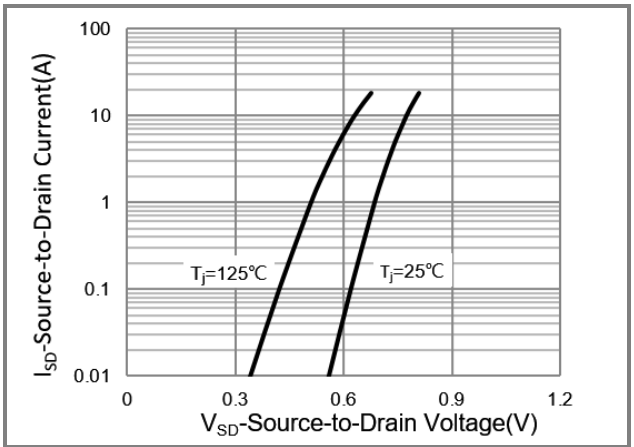


Fig.6 Source-Drain Diode Forward Voltage

PJD70N06 / PJP70N06

TYPICAL CHARACTERISTIC CURVES

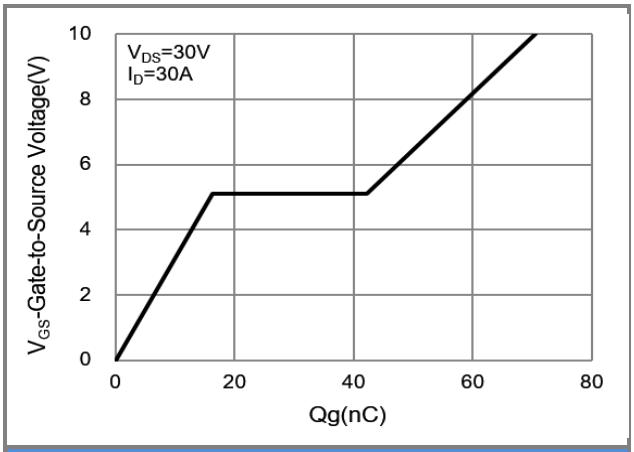


Fig.7 Gate-Charge Characteristics

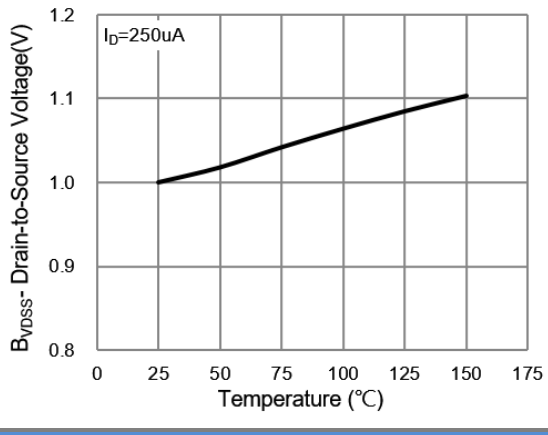


Fig.8 Breakdown Voltage Variation vs. Temperature

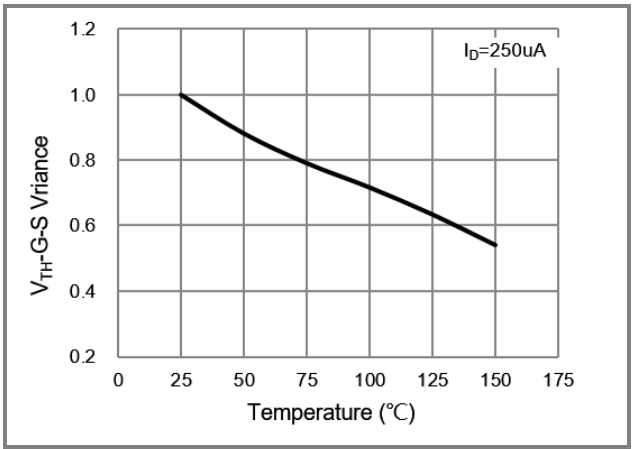


Fig.9 Threshold Voltage Variation with Temperature

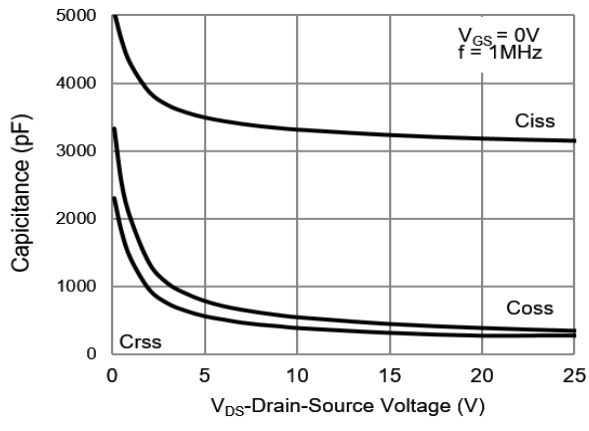


Fig.10 Capacitance vs. Drain-Source Voltage

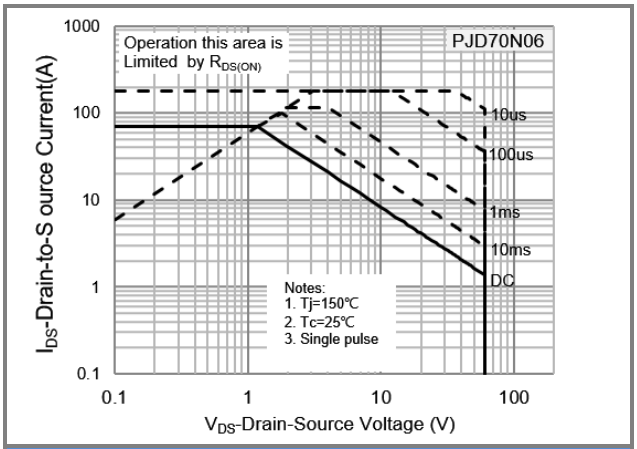


Fig.11 Maximum Safe Operating Area

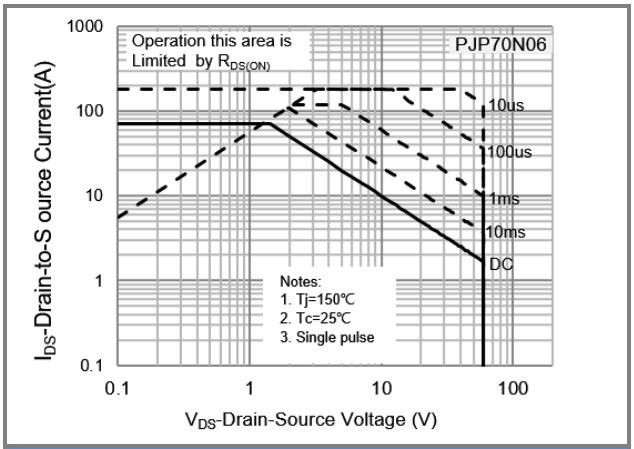


Fig.12 Maximum Safe Operating Area

PJD70N06 / PJP70N06

TYPICAL CHARACTERISTIC CURVES

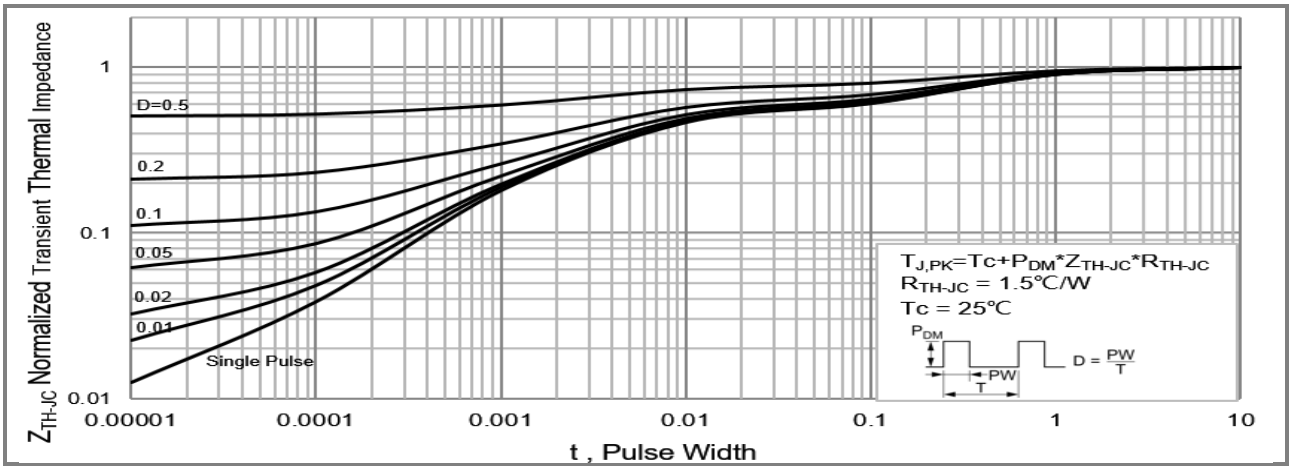


Fig.13 PJU/PJD Normalized Transient Thermal Impedance vs. Pulse Width

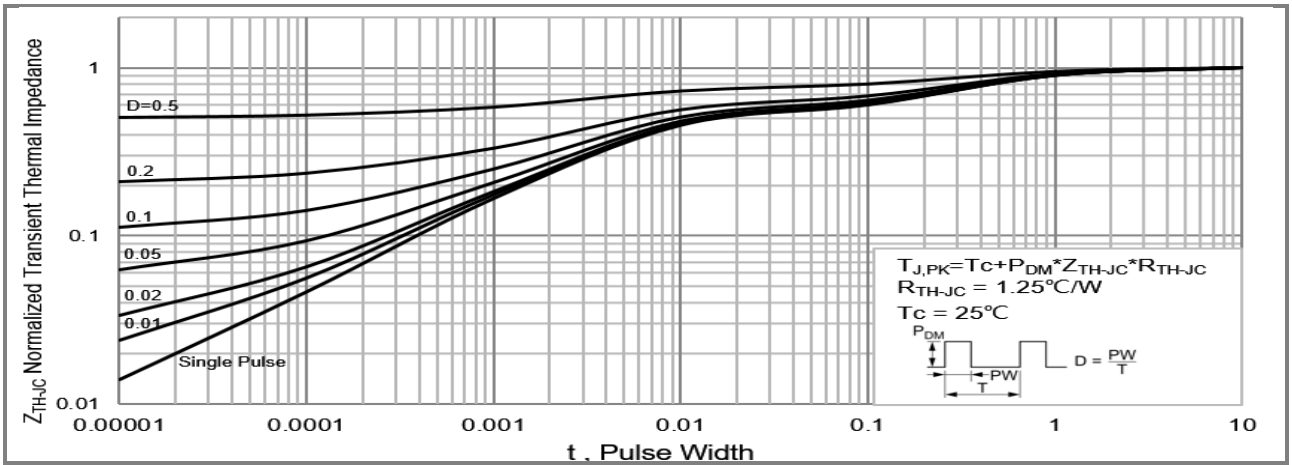


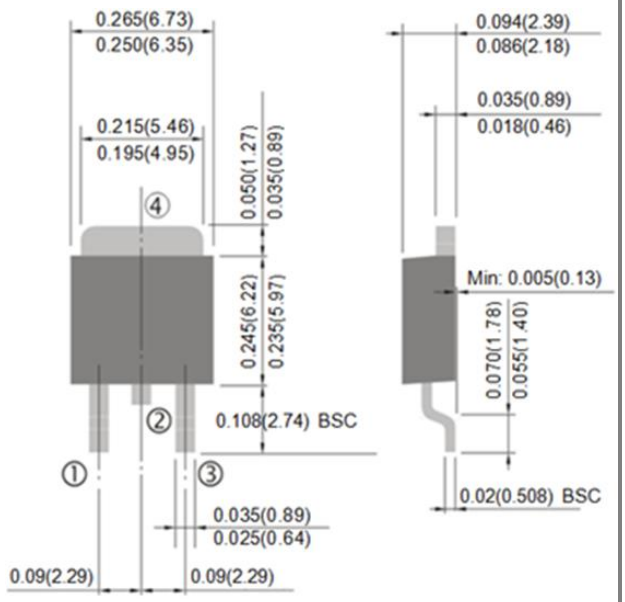
Fig.14 Normalized Transient Thermal Impedance vs. Pulse Width

PJD70N06 / PJP70N06

Packaging Information .

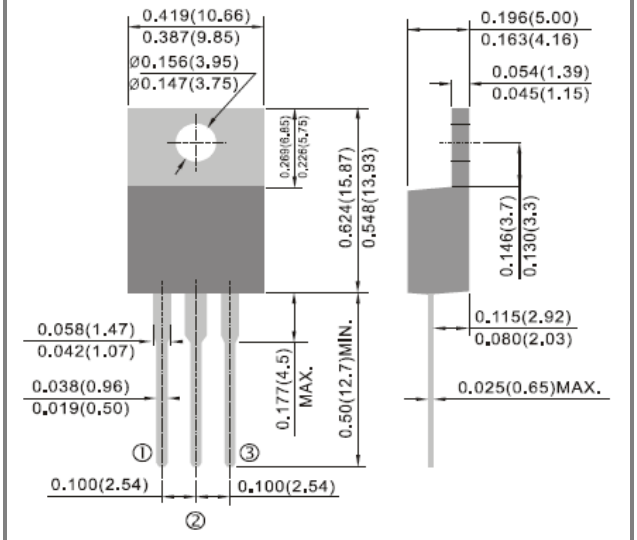
TO-252AA Dimension

Unit: mm



TO-220AB Dimension

Unit: mm



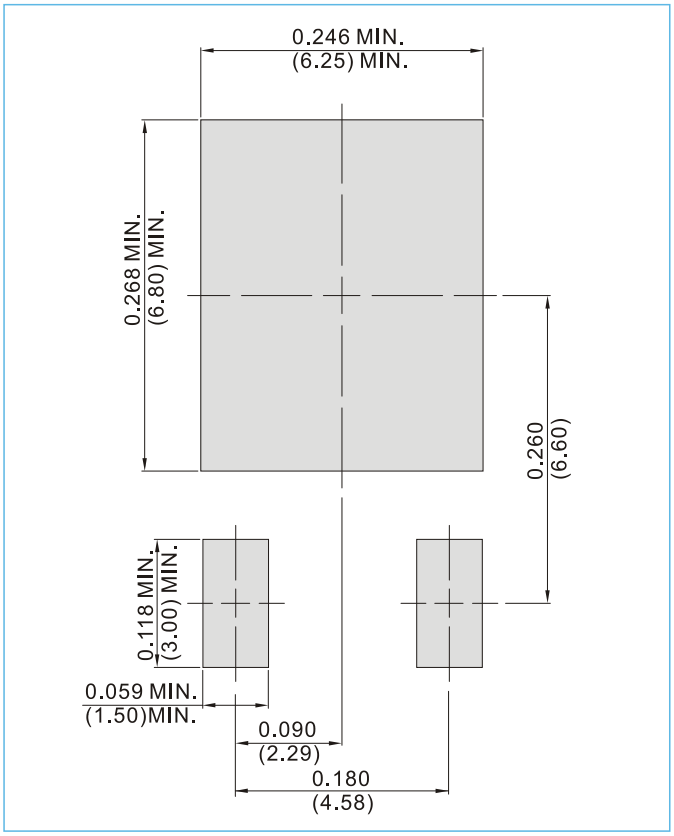
PJD70N06 / PJP70N06

PART NO PACKING CODE VERSION

Part No Packing Code	Package Type	Packing Type	Marking	Version
PJD70N06_L2_00001	TO-252AA	3,000pcs / 13” reel	D70N06	Halogen free
PJP70N06_T0_00001	TO-220AB	50pcs / Tube	P70N06	Halogen free

MOUNTING PAD LAYOUT

TO-252AA Unit : inch(mm)



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