



PJU2NA60 / PJP2NA60 / PJF2NA60 / PJD2NA60

600V N-Channel MOSFET

Voltage

600 V

Current

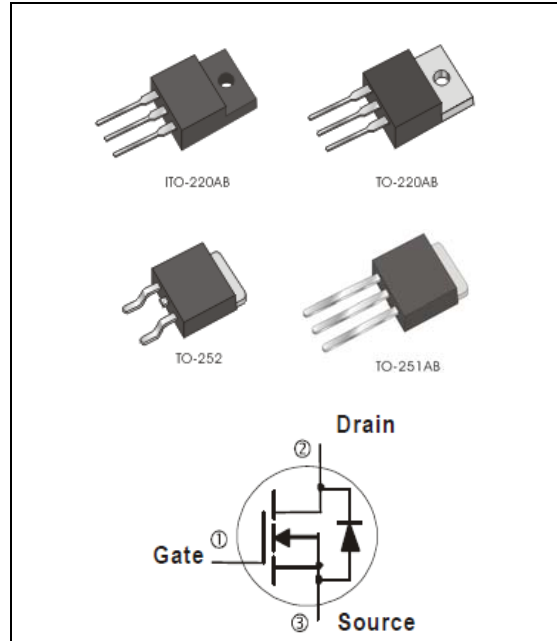
2 A

Features

- $R_{DS(ON)}, V_{GS}@10V, I_D@1A < 4.4\Omega$
- 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-251AB , TO-220AB, ITO-220AB, TO-252 Package
- Terminals : Solderable per MIL-STD-750, Method 2026
- TO-251AB Approx. Weight : 0.0104 ounces, 0.297grams
- TO-220AB Approx. Weight : 0.065 ounces, 1.859 grams
- ITO-220AB Approx. Weight : 0.056 ounces, 1.6 grams
- TO-252 Approx. Weight : 0.0104 ounces, 0.297grams



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

PARAMETER		SYMBOL	TO-251AB	TO-220AB	ITO-220AB	TO-252	UNITS
Drain-Source Voltage		V_{DS}	600				V
Gate-Source Voltage		V_{GS}	±30				V
Continuous Drain Current		I_D	2				A
Pulsed Drain Current		I_{DM} 8					A
Single Pulse Avalanche Energy ^(Note 1)		E_{AS}	115				mJ
Power Dissipation	$T_C=25^\circ\text{C}$	P_D	34	44	23	34	W
	Derate above 25°C		0.27	0.35	0.18	0.27	W/ $^\circ\text{C}$
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~150				$^\circ\text{C}$
Thermal resistance							
- Junction to Case		$R_{\theta JC}$	3.67	2.84	5.43	3.67	$^\circ\text{C}/\text{W}$
- Junction to Ambient		$R_{\theta JA}$	110	62.5	120	110	

- Limited only By Maximum Junction Temperature



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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 600		-	-	V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250uA 2		3.2	4	V
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} =10V, I _D =1A -		4	4.4	Ω
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =600V, V _{GS} =0V -		0.02	1.0	uA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±30V, V _{DS} =0V -		±10	±100 n	A
Diode Forward Voltage	V _{SD}	I _S =2A, V _{GS} =0V -		0.86	1.4	V
Dynamic						
Total Gate Charge	Q _g	V _{DS} =480V, I _D =2A, V _{GS} =10V (Note 2,3)	- 5.7		-	nC
Gate-Source Charge	Q _{gs} -			1.8	-	
Gate-Drain Charge	Q _{gd} -			2	-	
Input Capacitance	C _{iss}	V _{DS} =25V, V _{GS} =0V, f=1.0MHZ	- 257		-	pF
Output Capacitance	C _{oss}			39.7	-	
Reverse Transfer Capacitance	C _{rss}			0.92	-	
Switching						
Turn-On Delay Time	t _{d(on)}	V _{DD} =300V, I _D =2A, R _G =25Ω (Note 2,3)	- 10		-	ns
Turn-On Rise Time	t _r -			24	-	
Turn-Off Delay Time	t _{d(off)} -			16	-	
Turn-Off Fall Time	t _f -			21	-	
Drain-Source Diode						
Maximum Continuous Drain-Source Diode Forward Current	I _S -	--	-	-	2	A
Maximum Pulsed Drain-Source Diode Forward Current	I _{SM} -	--	-	-	8	A
Reverse Recovery Time	t _{rr}	V _{GS} =0V, I _S =2A	- 357		-	ns
Reverse Recovery Charge	Q _{rr}	dI _F / dt=100A/us (Note 2)	-	2	-	uC

NOTES :

1. L= 30mH, I_{AS}=2.7A, V_{DD}=50V, R_G=25ohm, Starting T_J=25°C
2. Pulse width≤300us, Duty cycle≤2%
3. Essentially independent of operating temperature typical characteristics.



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TYPICAL CHARACTERISTIC CURVES

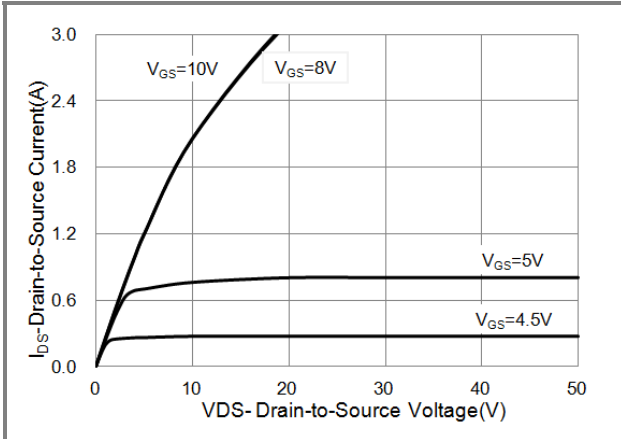


Fig.1 Output Characteristics

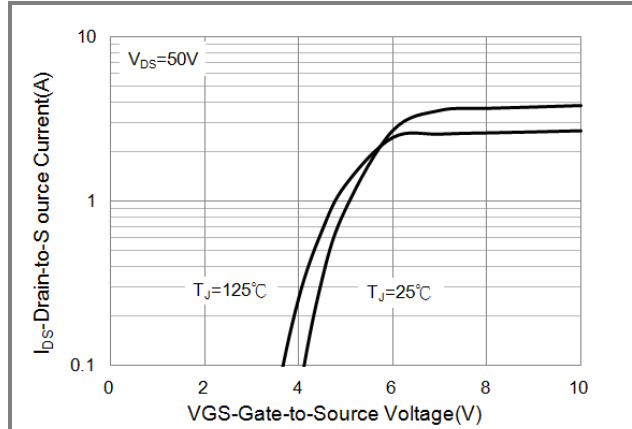


Fig.2 Transfer Characteristics

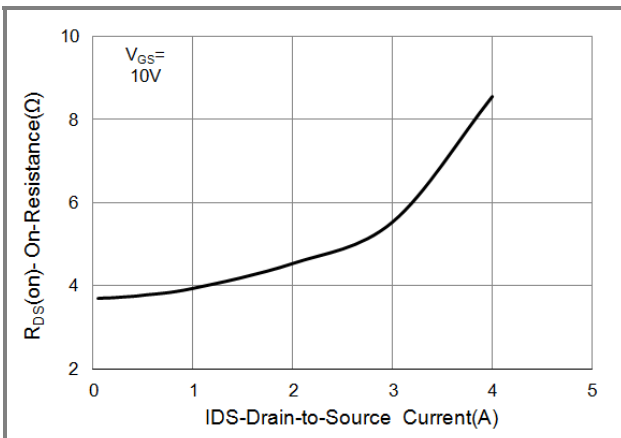


Fig.3 On-Resistance vs. Drain Current

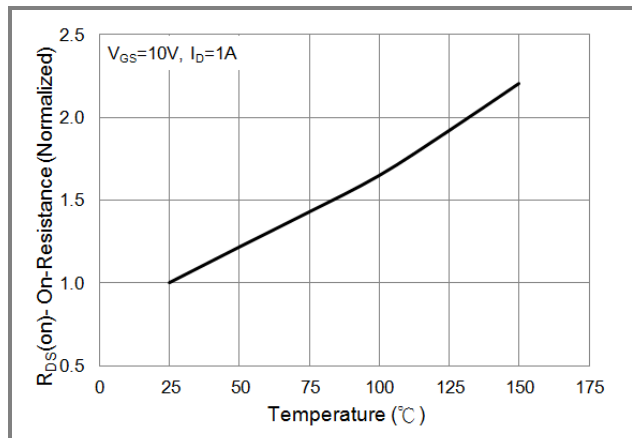


Fig.4 On-Resistance vs. Junction Temperature

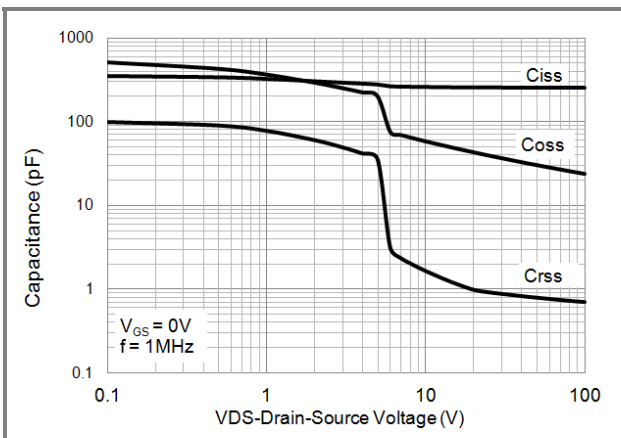


Fig.5 Capacitance vs. Drain-Source Voltage

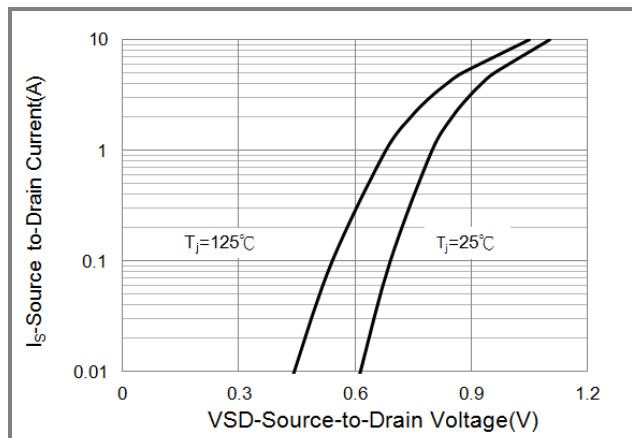


Fig.6 Source-Drain Diode Forward Voltage



PJU2NA60 / PJP2NA60 / PJF2NA60 / PJD2NA60

TYPICAL CHARACTERISTIC CURVES

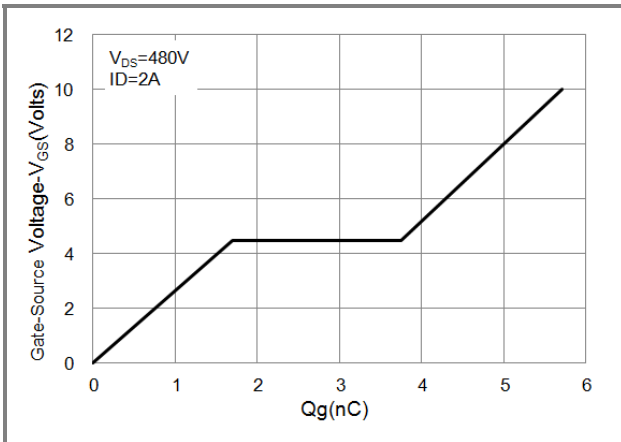


Fig.7 Gate Charge

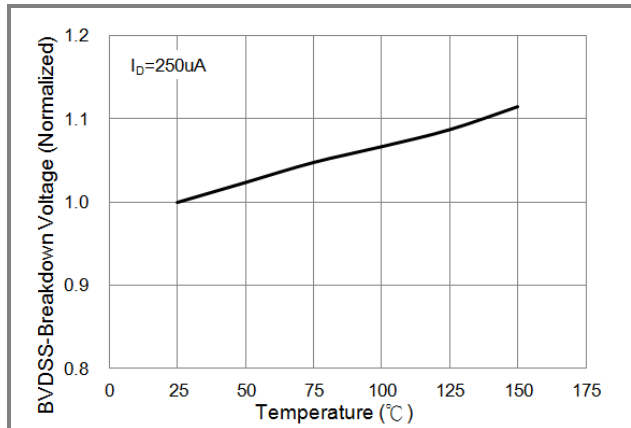


Fig.8 BV_{DSS} vs. Junction Temperature

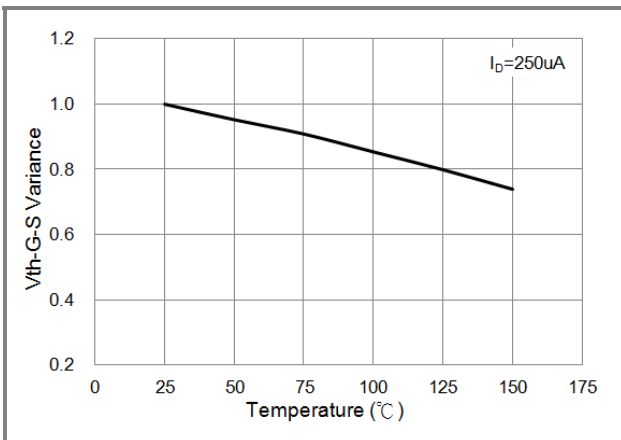


Fig.9 Threshold Voltage Variation with Temperature

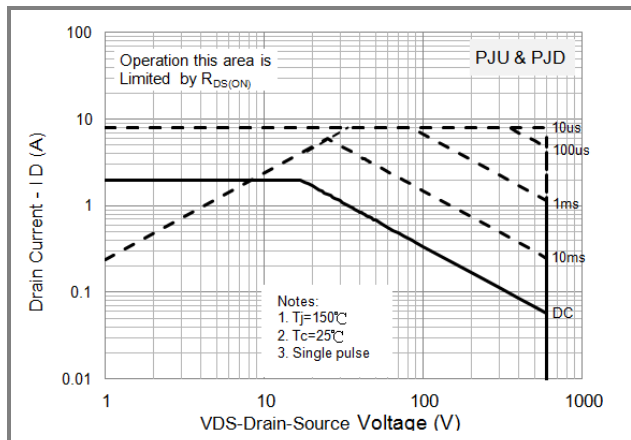


Fig.10 Maximum Safe Operating Area

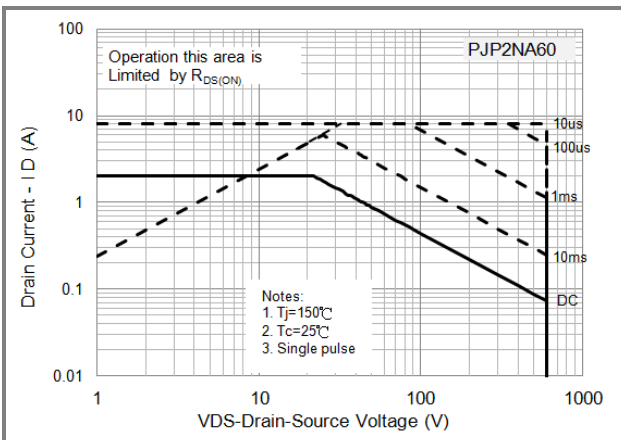


Fig.11 Maximum Safe Operating Area

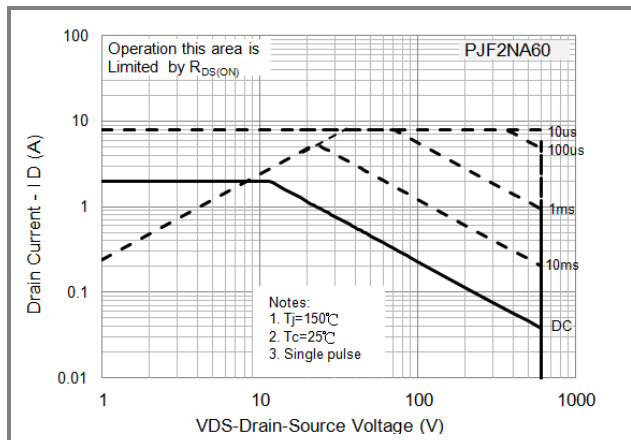


Fig.12 Maximum Safe Operating Area



PJU2NA60 / PJP2NA60 / PJF2NA60 / PJD2NA60

TYPICAL CHARACTERISTIC CURVES

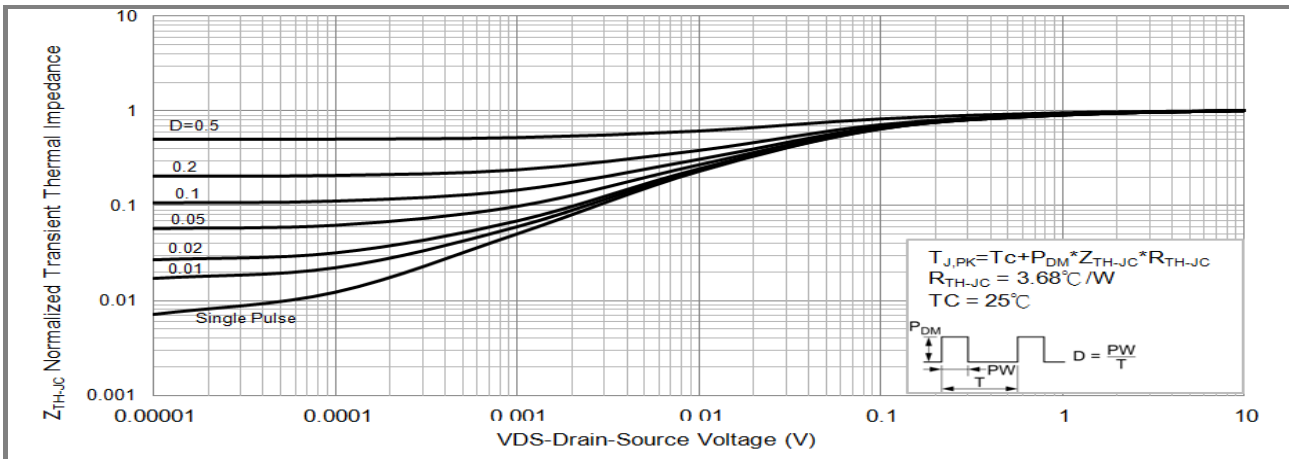


Fig.13 PJU/PJD Normalized Transient Thermal Impedance vs. Pulse Width

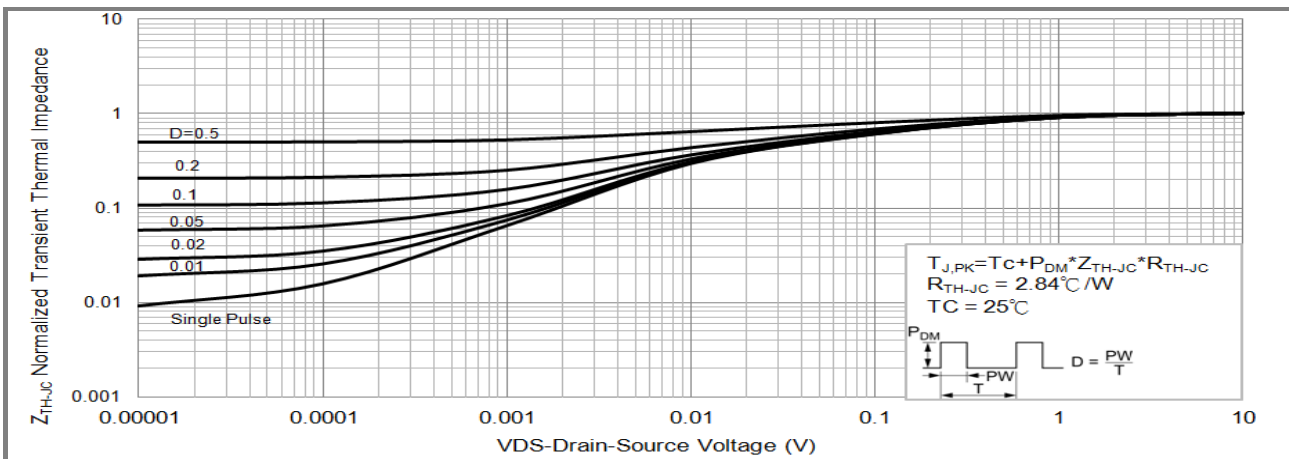


Fig.14 PJP2NA60 Normalized Transient Thermal Impedance vs. Pulse Width

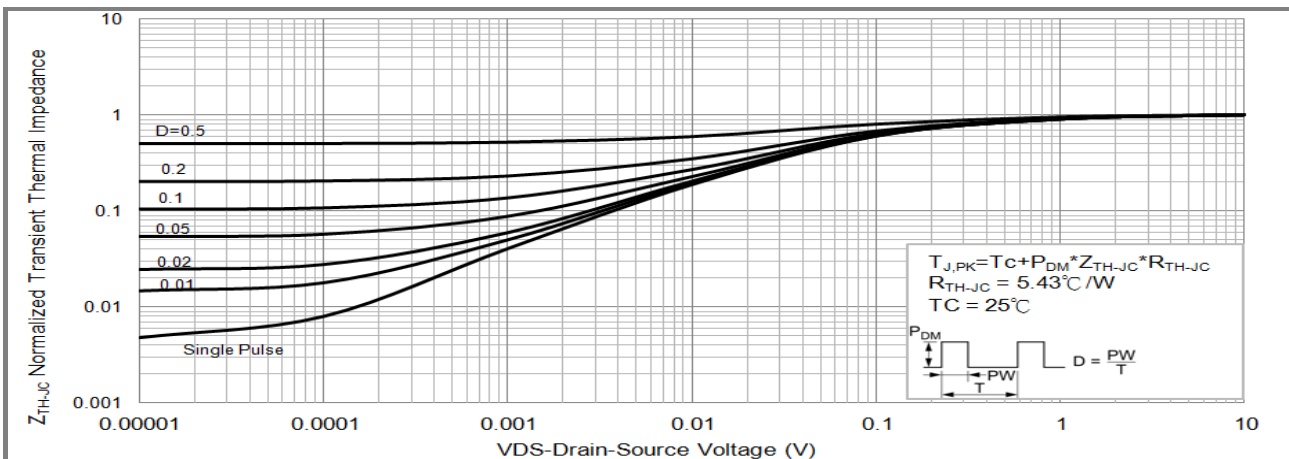
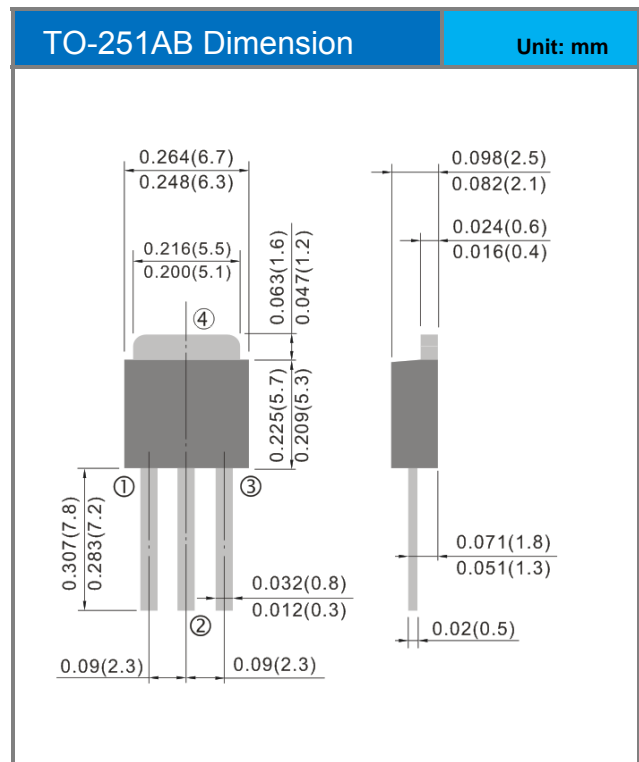
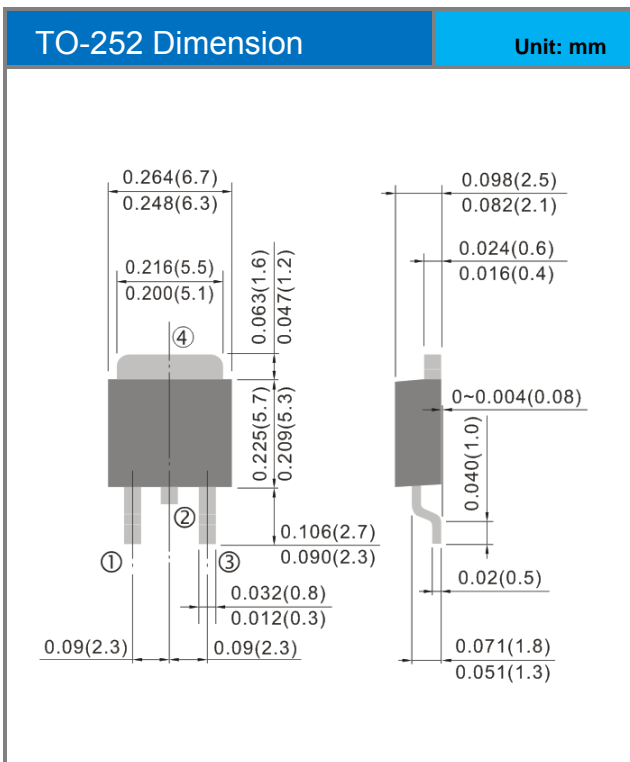
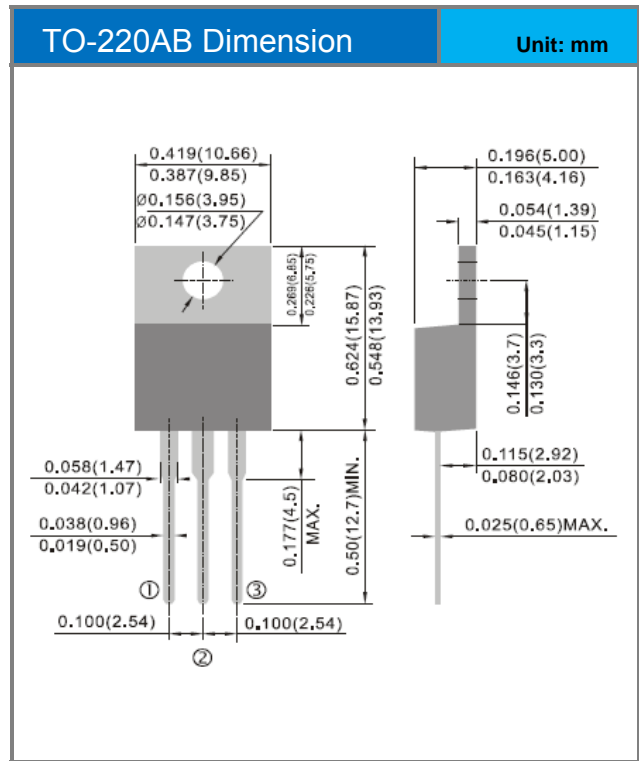
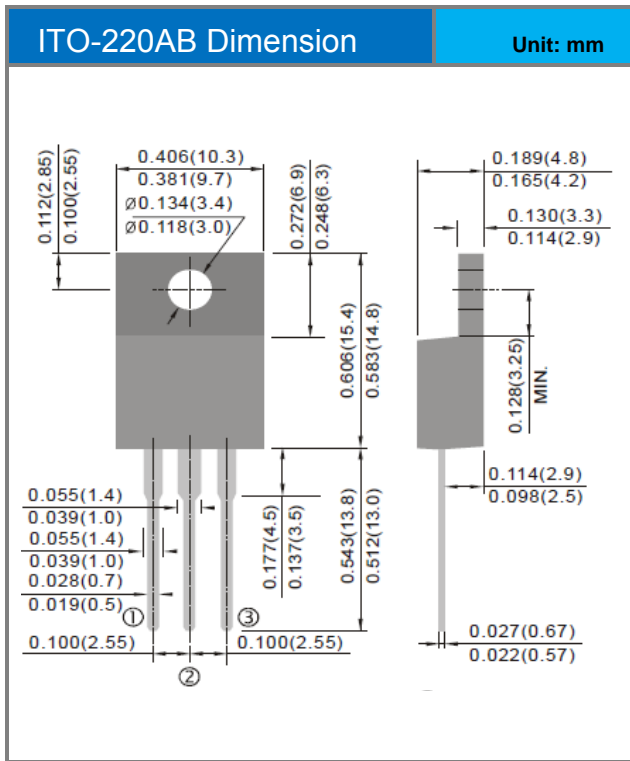


Fig.15 PJF2NA60 Normalized Transient Thermal Impedance vs. Pulse Width



PJU2NA60 / PJP2NA60 / PJF2NA60 / PJD2NA60

Packaging Information





PJU2NA60 / PJP2NA60 / PJF2NA60 / PJD2NA60

PART NO PACKING CODE VERSION

Part No Packing Code	Package Type	Packing type	Marking	Version
PJU2NA60_T0_00001	TO-251AB	Tube packing	U2NA60	Halogen free
PJP2NA60_T0_00001	TO-220AB	Tube packing	P2NA60	Halogen free
PJF2NA60_T0_00001	ITO-220AB	Tube packing	F2NA60	Halogen free
PJD2NA60_R2_00001	TO-252	13" tape & reel	D2NA60	Halogen free



PJU2NA60 / PJP2NA60 / PJF2NA60 / PJD2NA60

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