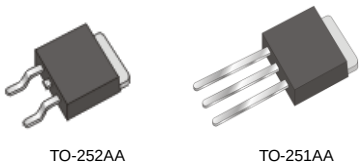
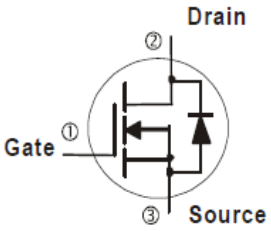
PJU50N10L / PJD50N10L

100V N-Channel Enhancement Mode MOSFET

Voltage	100 V	Current	50 A





Features

- $R_{DS(ON)}$, V_{GS}@10V,I_D@30A<22mΩ
- High switching speed
- Improved dv/dt capability
- 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-251AA, TO-252AA Package
- Terminals : Solderable per MIL-STD-750, Method 2026
- TO-251AA Approx. Weight : 0.0104 ounces, 0.297grams
- TO-252AA Approx. Weight : 0.0104 ounces, 0.297grams

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

PARAMETER		SYMBOL	LIMIT	UNITS
Drain-Source Voltage		V_{DS}	100	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	T_C=25°C	I_D	50	A
	T_C=100°C		32	
Pulsed Drain Current	T_C=25°C	I_{DM}	100	
Power Dissipation	T_C=25°C	P_D	96	W
	T_C=100°C		38	
Continuous Drain Current	T_A=25°C	I_D	8	A
	T_A=70°C		6.5	A
Power Dissipation	T_A=25°C	P_D	2.5	W
Power Dissipation	T_A=70°C		1.6	
Single Pulse Avalanche Energy (Note 1)		E_{AS}	80	mJ
Operating Junction and Storage Temperature Range		T_J,T_{STG}	-55~150	°C
Typical Thermal Resistance	Junction to Case	$R_{\theta JC}$	1.3	°C/W
	Junction to Ambient	$R_{\theta JA}$	50 (Note 1)	

- 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	100	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250uA	2.5	3.57	4.5	V
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS}=10V,I_D=30A	-	18.3	22	mΩ
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=80V,V_{GS}=0V	-	0.01	1.0	uA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±20V,V_{DS}=0V	-	±10	±100	nA
Dynamic (Note 5)						
Total Gate Charge	Q_g	V_{DS}=50V, I_D=30A, V_{GS}=10V (Note 2,3)	-	29	-	nC
Gate-Source Charge	Q_{gs}		-	9.5	-	
Gate-Drain Charge	Q_{gd}		-	10	-	
Input Capacitance	Ciss	V_{DS}=15V, V_{GS}=0V, f=1.0MHZ	-	1643	-	pF
Output Capacitance	Coss		-	257	-	
Reverse Transfer Capacitance	Crss		-	63	-	
Turn-On Delay Time	$td_{(on)}$	V_{DD}=50V, I_D=30A, V_{GS}=10V, R_G=3Ω (Note 2,3)	-	19	-	ns
Turn-On Rise Time	t_r		-	56	-	
Turn-Off Delay Time	$td_{(off)}$		-	25	-	
Turn-Off Fall Time	t_f		-	13	-	
Drain-Source Diode						
Maximum Continuous Drain-Source Diode Forward Current	I_S	---	-	-	50	A
Diode Forward Voltage	V_{SD}	I_S=1A,V_{GS}=0V	-	0.67	1.0	V
Reverse Recovery Time	trr	V_{GS}=0V, I_S=20A dI$_F$/ dt=100A/us (Note 2)	-	31	-	ns
Reverse Recovery Charge	Qrr		-	38	-	uC

NOTES :

1. The test by surface mounted on 1 inch FR4 board with 2oz copper.
2. L=0.1mH, I_{AS}=40A, V_{DD}=25V, V_{GS}=10V, R_G=25ohm, Starting T_J=25°C
3. The Power dissipation is limit by 150℃ junction temperature.
4. Pulse width≤300us, Duty cycle≤2%
5. Guaranteed by design, not subject to production testing

PJU50N10L / PJD50N10L

TYPICAL CHARACTERISTIC CURVES

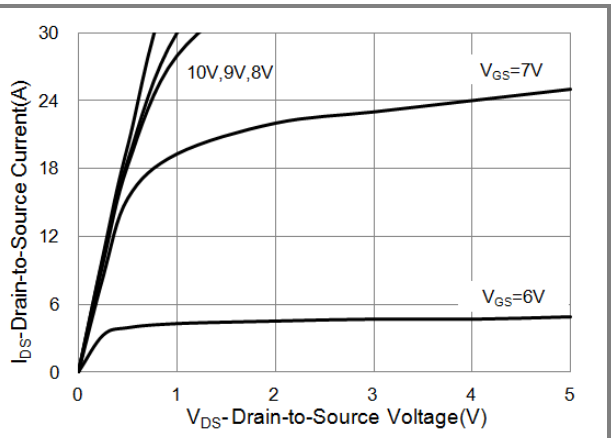

Fig.1 Output Characteristics

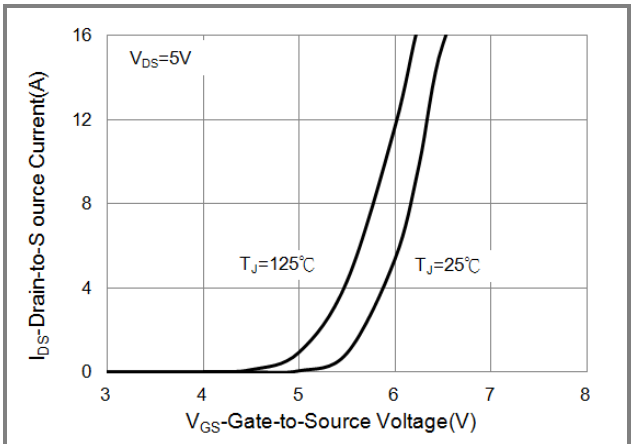

Fig.2 Transfer Characteristics

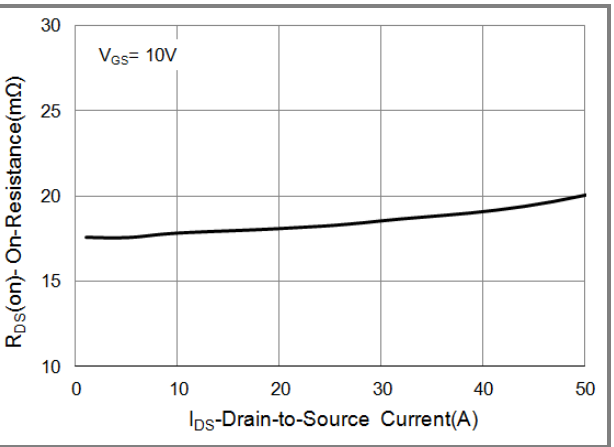

Fig.3 On-Resistance vs. Drain Current

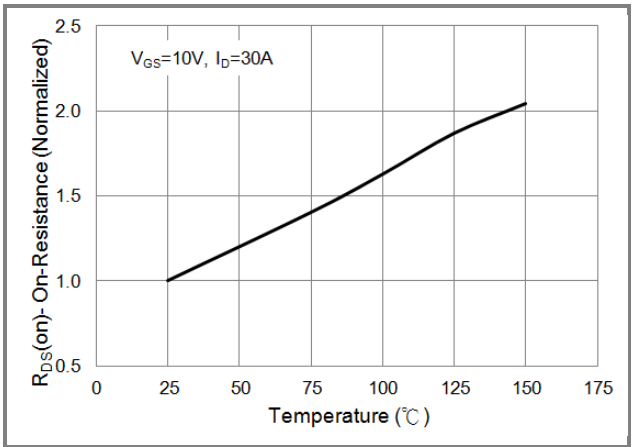

Fig.4 On-Resistsnce vs. Junction temperature

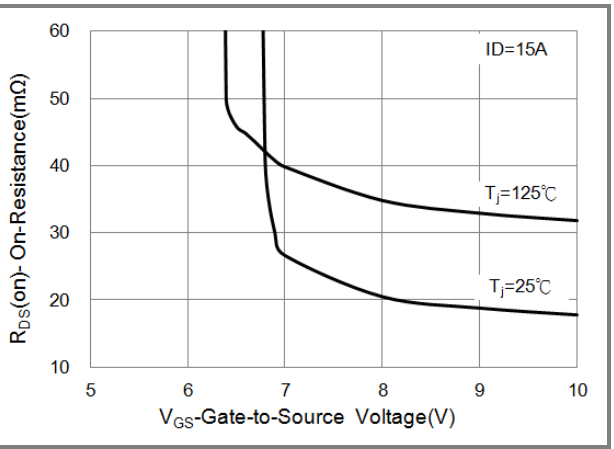

Fig.5 On-Resistance Variation with VGS.

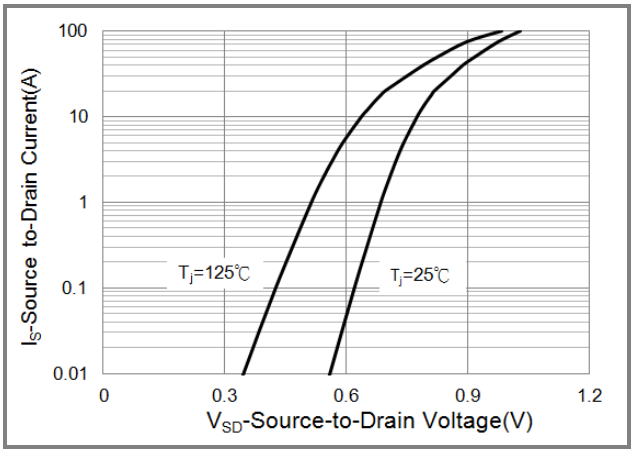

Fig.6 Source-Drain Diode Forward Voltage

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TYPICAL CHARACTERISTIC CURVES

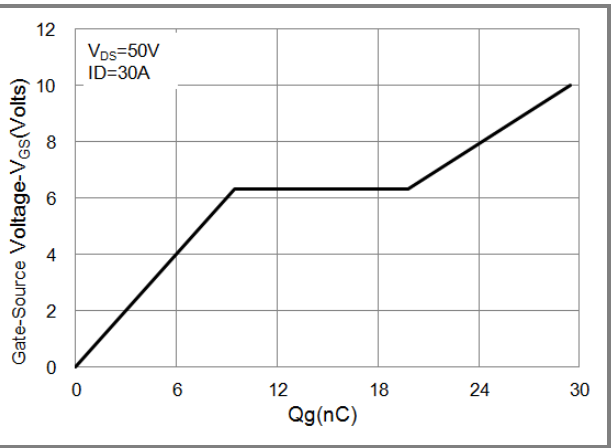


Fig.7 Gate-Charge Characteristics

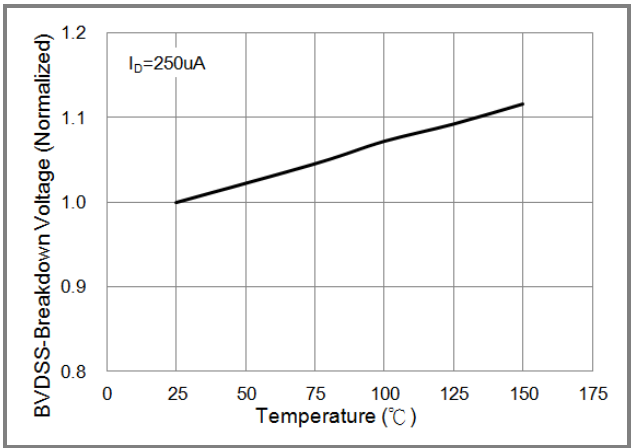


Fig.8 Breakdown Voltage Variation vs. Temperature

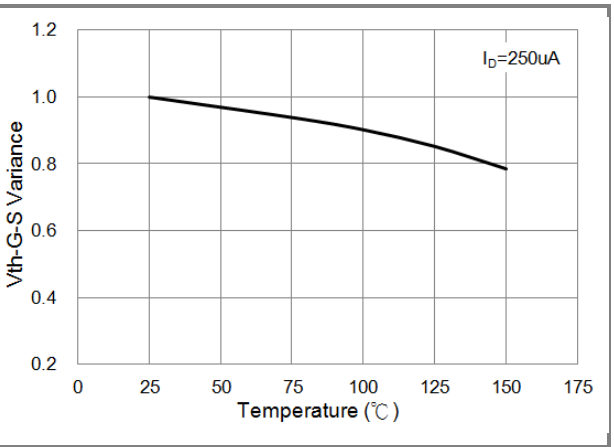


Fig.9 Threshold Voltage Variation with Temperature

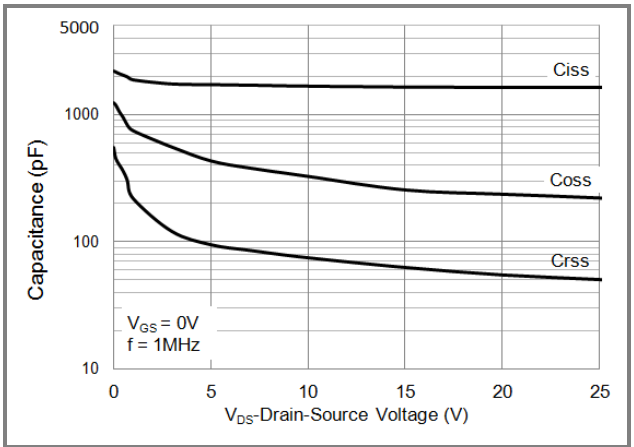


Fig.10 Capacitance vs. Drain-Source Voltage

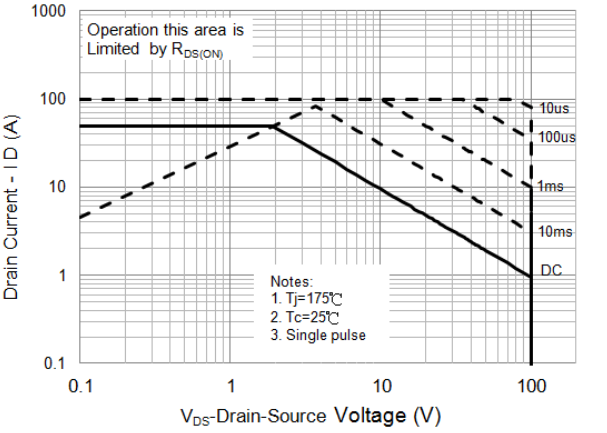


Fig.11 Maximum Safe Operating Area

PJU50N10L / PJD50N10L

TYPICAL CHARACTERISTIC CURVES

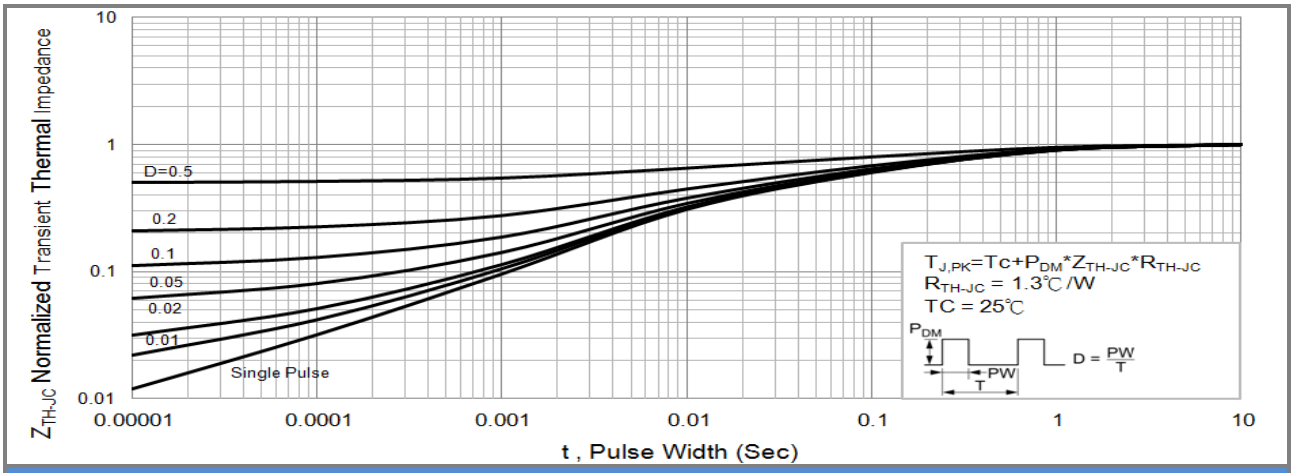
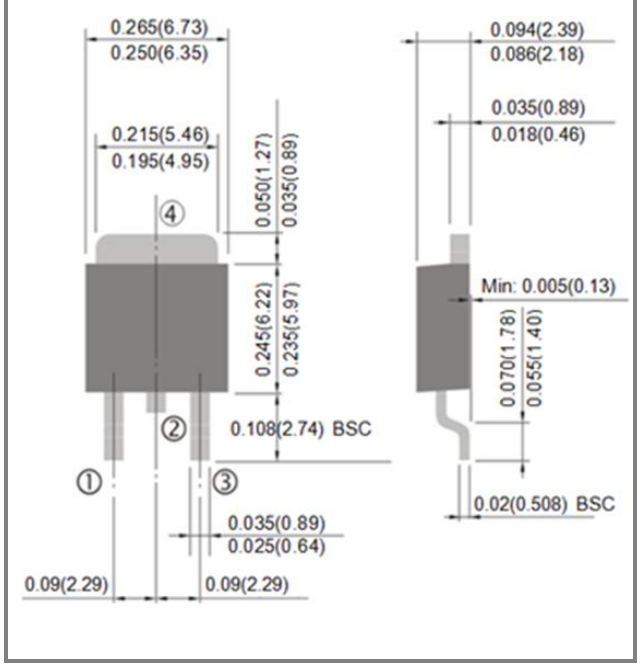


Fig.12 Normalized Transient Thermal Impedance vs. Pulse Width

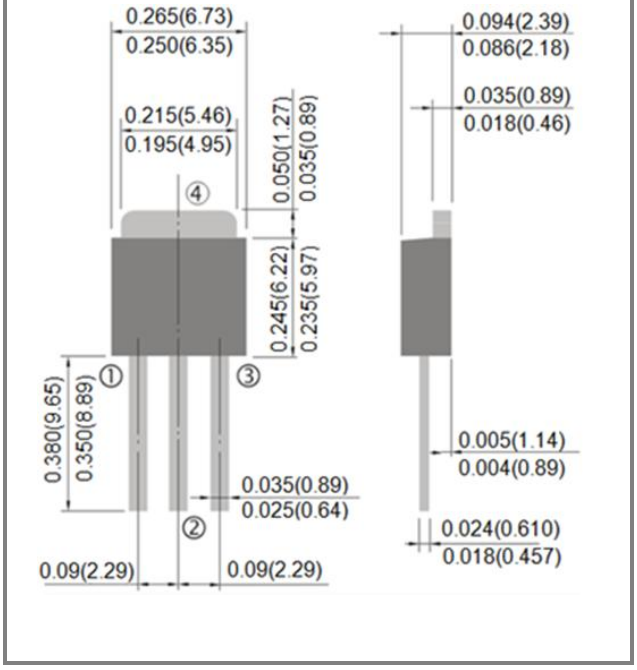
PJU50N10L / PJD50N10L

Packaging Information .

TO-252AA Dimension — Unit: mm



TO-251AA Dimension — Unit: mm

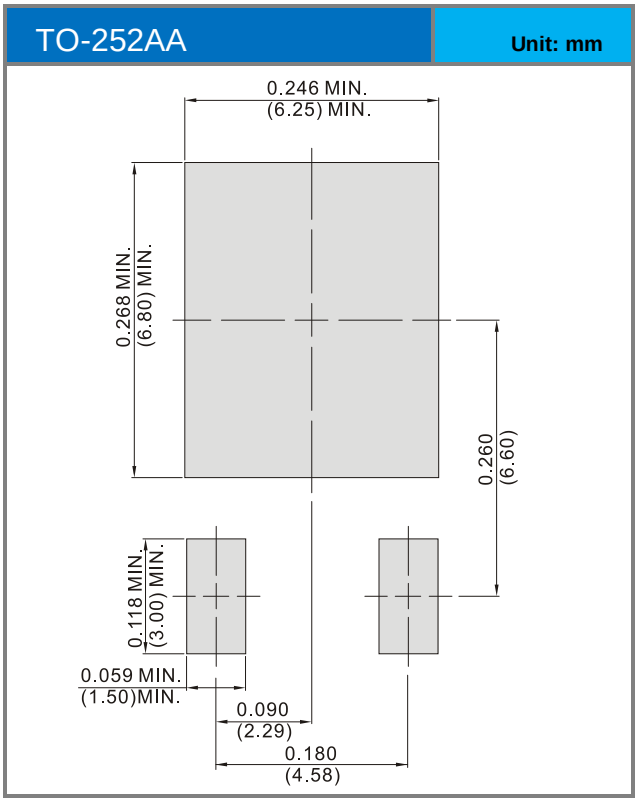


PJU50N10L / PJD50N10L

PART NO PACKING CODE VERSION

Part No Packing Code	Package Type	Packing Type	Marking	Version
PJD50N10L_L2_00001	TO-252AA	3,000pcs / 13” reel	D50N10L	Halogen free
PJU50N10L_T0_00001	TO-251AA	80pcs / Tube	U50N10L	Halogen free

MOUNTING PAD LAYOUT



PJU50N10L / PJD50N10L

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