



# PJA63P02

## 20V P-CHANNEL ENHANCEMENT MODE MOSFET

**VOLTAGE** 20 Volts **CURRENT** 2.9 Amperes

**SOT-23** Unit : inch(mm)

### FEATURES

- $R_{DS(ON)}$ ,  $V_{GS}@-1.8V, I_D@-2.3A < 108\text{ m}\Omega$
- $R_{DS(ON)}$ ,  $V_{GS}@-4.5V, I_D@-3.3A < 63\text{ m}\Omega$
- Advanced Trench Process Technology
- High Density Cell Design For Ultra Low On-Resistance
- Specially Designed for DC/DC Converters
- Low Gate Charge
- Lead free in comply with EU RoHS 2002/95/EC directives.
- Green molding compound as per IEC61249 Std. . (Halogen Free)

### MECHANICAL DATA

- Case: SOT-23 Package
- Terminals : Solderable per MIL-STD-750, Method 2026
- Apporx. Weight : 0.0003 ounces, 0.0084grams
- Marking : 63

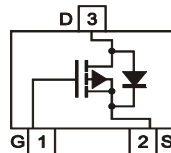
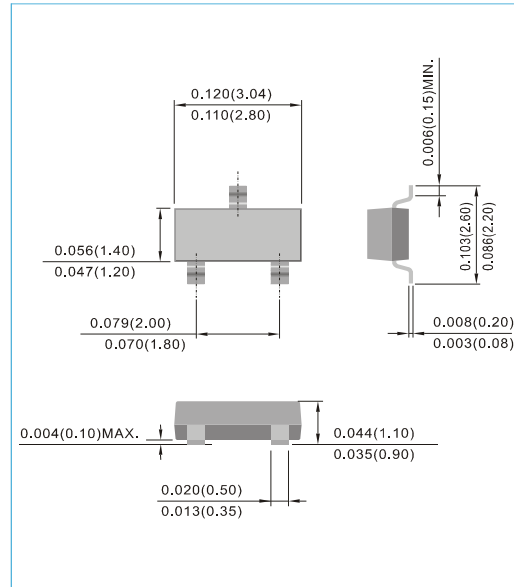


Fig.80 (TOP VIEW)

## MAXIMUM RATINGS AND THERMAL CHARACTERISTICS ( $T_A=25^\circ\text{C}$ unless otherwise noted)

PARAMETER		SYMBOL	LIMIT	UNITS
Drain-Source Voltage		$V_{DS}$	-20	V
Gate-Source Voltage		$V_{GS}$	$\pm 12$	V
Continuous Drain Current	Steady-State $T_A=25^\circ\text{C}$	$I_D$	-2.9	A
Pulsed Drain Current		$I_{DM}$	-12	A
Power Dissipation (Notes 1)	Steady-State $T_A=25^\circ\text{C}$	$P_D$	0.8	W
Typical Thermal Resistance (Notes 1)		$R_{\theta JA}$	155	$^\circ\text{C}/\text{W}$
Operating Junction and Storage Temperature Range		$T_J, T_{STG}$	-55 to + 150	$^\circ\text{C}$

### NOTES:

1. Mounted on 7.5cm<sup>2</sup> FR-4 PCB .



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## ELECTRICAL CHARACTERISTICS (T<sub>A</sub>=25°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> =-250μA	-20	-	-	V
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =-250μA	-0.45	-0.61	-1.0	V
Drain-Source On-State Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -3.3A	-	50	63	mΩ
		V <sub>GS</sub> = -2.5V, I <sub>D</sub> = -2.8A	-	62	80	
		V <sub>GS</sub> = -1.8V, I <sub>D</sub> = -2.3A	-	79	108	
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = -16V, V <sub>GS</sub> =0V	-	-	-1	μA
Gate -Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> = ±8V, V <sub>DS</sub> =0V	-	-	±100	nA
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> = -1A, V <sub>GS</sub> =0V	-	-0.78	-1	V
Dynamic						
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> = -10V, I <sub>D</sub> = -2.7A V <sub>GS</sub> = -4.5V	-	12.7	-	nC
Gate-Source Charge	Q <sub>gs</sub>		-	1.5	-	
Gate-Drain Charge	Q <sub>gd</sub>		-	2.98	-	
Turn-On Delay Time	td <sub>on</sub>	V <sub>DS</sub> = -10V, V <sub>GS</sub> = -4.5V, R <sub>G</sub> = 6Ω, R <sub>L</sub> = 3Ω	-	16.2	-	ns
Turn-Off Delay Time	td <sub>off</sub>		-	66.4	-	
Turn-On Rise Time	t <sub>r</sub>		-	20.2	-	
Turn-Off Fall Time	t <sub>f</sub>		-	17.2	-	
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> = -10V, V <sub>GS</sub> =0V f=1.0MHz	-	1141	-	pF
Output Capacitance	C <sub>oss</sub>		-	99	-	
Reverse Transfer Capacitance	C <sub>rss</sub>		-	92	-	



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## RATING AND CHARACTERISTIC CURVES

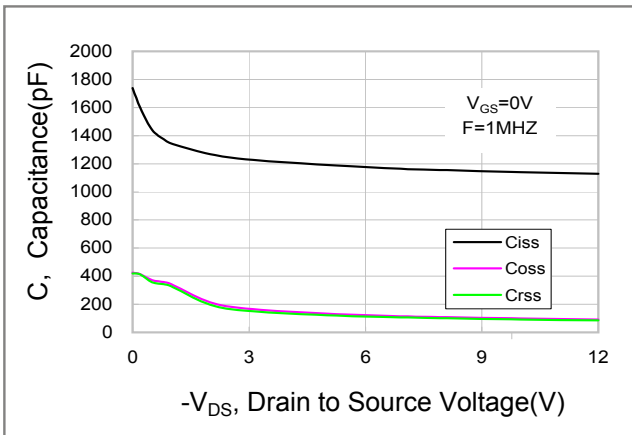


Fig.1 Capacitance Variation

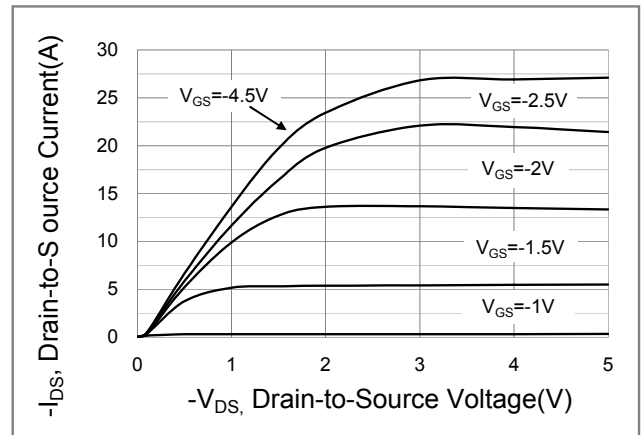


Fig.2 Drain-Source Current VS Drain-Source Voltage

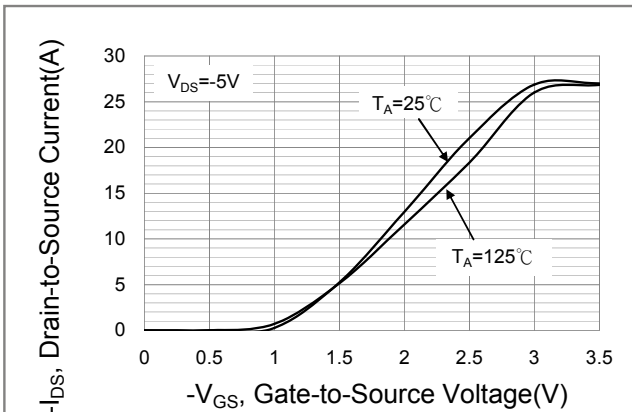


Fig.3 Drain-Source Current VS Gate-Source Voltage

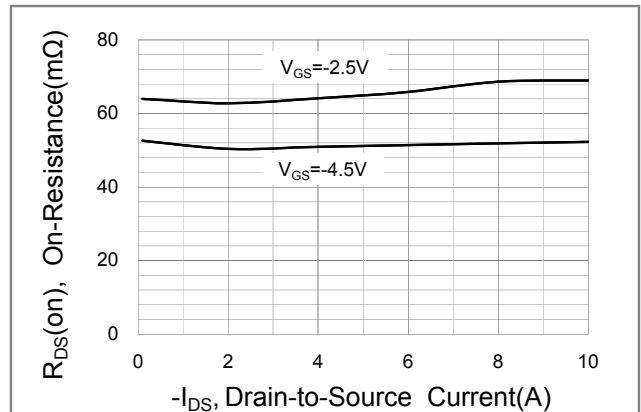


Fig.4 On-Resistance VS Drain-Source current

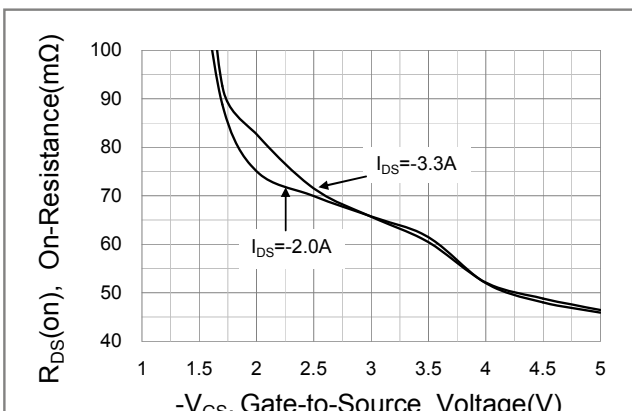


Fig.5 On-Resistance VS Gate-Source Voltage

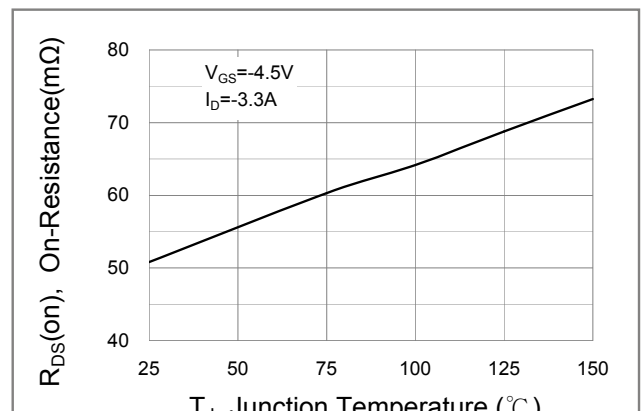


Fig.6 On-Resistance VS Junction Temperature



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## RATING AND CHARACTERISTIC CURVES

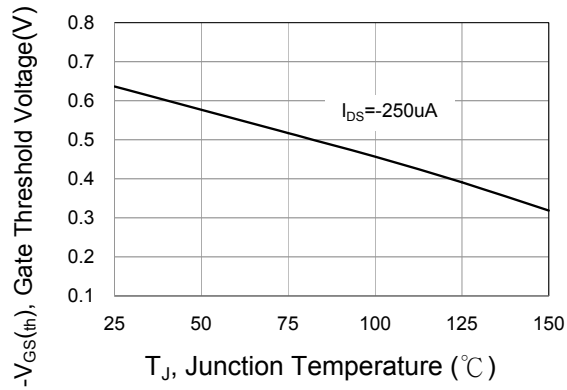


Fig.7 Gate Threshold Voltage VS Junction Temperature

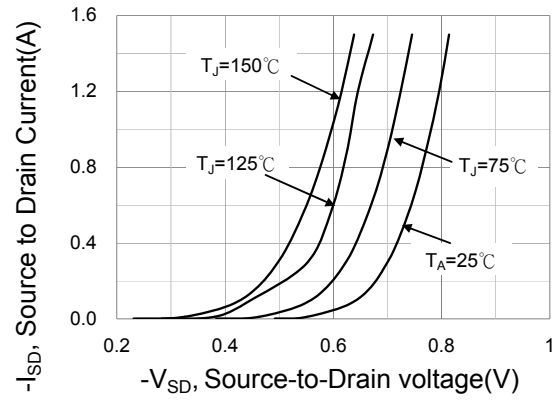
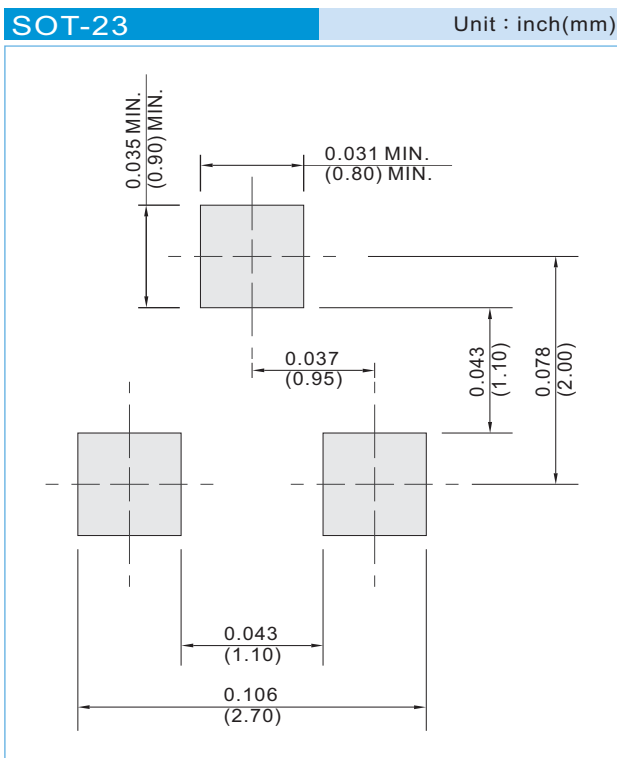


Fig.8 Source-Drain Current VS Source-Drain Voltage



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## MOUNTING PAD LAYOUT



### ORDER INFORMATION

- Packing information
  - T/R - 12K per 13" plastic Reel
  - T/R - 3K per 7" plastic Reel

### LEGAL STATEMENT

#### Copyright PanJit International, Inc 2012

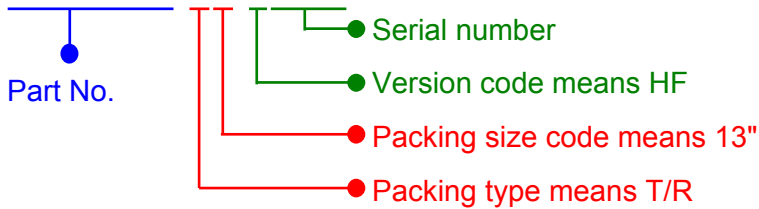
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For example :

**RB500V-40\_R2\_0000%**



**Part No\_packing code\_Version**

**D>5 '\*' D\$&SF %\$\$\$\$%**

**D>5 '\*' D\$&SF &\$\$\$\$%**

Packing Code <b>XX</b>				Version Code <b>XXXXX</b>		
Packing type	<b>1<sup>st</sup> Code</b>	Packing size code	<b>2<sup>nd</sup> Code</b>	HF or RoHS	<b>1<sup>st</sup> Code</b>	<b>2<sup>nd</sup>~5<sup>th</sup> Code</b>
T/B	<b>A</b>	N/A	<b>0</b>	HF	<b>0</b>	<b>serial number</b>
T/R	<b>R</b>	7"	<b>1</b>	RoHS	<b>1</b>	<b>serial number</b>
B/P	<b>B</b>	13"	<b>2</b>			
T/P	<b>T</b>	26mm	<b>X</b>			
TRR	<b>S</b>	52mm	<b>Y</b>			
TRL	<b>L</b>	PBCU	<b>U</b>			
FORMING	<b>F</b>	PBCD	<b>D</b>			