



# PJA55P03

## 30V P-CHANNEL ENHANCEMENT MODE MOSFET

**VOLTAGE** 30 Volts **CURRENT** 4.3 Amperes

**SOT-23-1** Unit : inch(mm)

### FEATURES

- $R_{DS(ON)}, V_{GS}@-10V, I_D@-4.3A < 48\text{ m}\Omega$
- $R_{DS(ON)}, V_{GS}@-4.5V, I_D@-3.5A < 55\text{ m}\Omega$
- Advanced Trench Process Technology
- High Density Cell Design For Ultra Low On-Resistance
- Specially Designed for DC/DC Converters
- Low Voltage Application
- Lead free in comply with EU RoHS 2002/95/EC directives.
- Green molding compound as per IEC61249 Std. . (Halogen Free)

### MECHANICAL DATA

- Case: SOT-23-1 Package
- Terminals : Solderable per MIL-STD-750, Method 2026
- Apprx. Weight : 0.0003 ounces, 0.0084grams
- Marking : 55

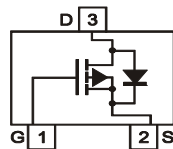
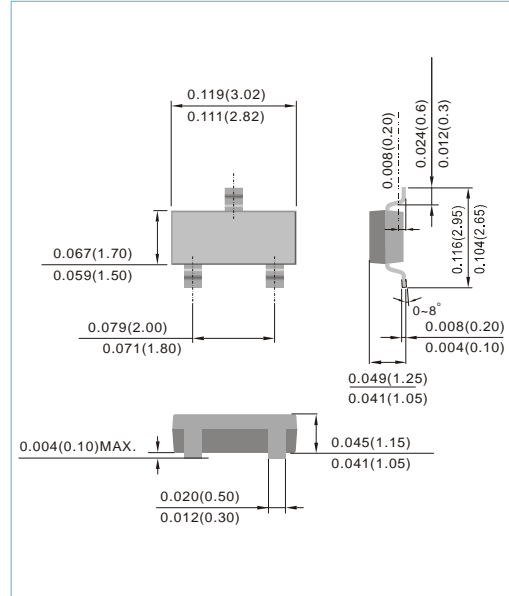


Fig.80 (TOP VIEW)



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

PARAMETER		SYMBOL	LIMIT	UNITS
Drain-Source Voltage		$V_{DS}$	-30	V
Gate-Source Voltage		$V_{GS}$	$\pm 12$	V
Continuous Drain Current	Steady-State $T_A=25^\circ\text{C}$	$I_D$	-4.3	A
Pulsed Drain Current		$I_{DM}$	-20	A
Power Dissipation (Notes 1)	Steady-State $T_A=25^\circ\text{C}$	$P_D$	1.25	W
Typical Thermal Resistance (Notes 1)		$R_{\theta JA}$	120	$^\circ\text{C}/\text{W}$
Operating Junction Temperature and Storage Temperature Range		$T_J, T_{STG}$	-55 to + 150	$^\circ\text{C}$

### NOTES:

1. Mounted on 48cm<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	-30	-	-	V
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =-250μA	-0.5	-1.0	-1.7	V
Drain-Source On-State Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> = -10V, I <sub>D</sub> = -4.3A	-	40	48	mΩ
		V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -3.5A	-	46	55	
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = -30V, V <sub>GS</sub> = 0V	-	-	-1	μA
Gate -Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> = ±12V, 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	-1.5	V
Dynamic						
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> = -15V, I <sub>D</sub> = -3.5A V <sub>GS</sub> = -10V	-	26.8	-	nC
Gate-Source Charge	Q <sub>gs</sub>		-	2.53	-	
Gate-Drain Charge	Q <sub>gd</sub>		-	2.96	-	
Turn-On Delay Time	td <sub>on</sub>	V <sub>DD</sub> = -15V, V <sub>GEN</sub> = -10V, R <sub>G</sub> = 6Ω, R <sub>L</sub> = 15Ω, I <sub>b</sub> = -1.0A	-	10.8	-	ns
Turn-Off Delay Time	td <sub>off</sub>		-	64.8	-	
Turn-On Rise Time	t <sub>r</sub>		-	18.8	-	
Turn-Off Fall Time	t <sub>f</sub>		-	9.6	-	
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> = -15V, V <sub>GS</sub> = 0V f = 1.0MHz	-	1330	-	pF
Output Capacitance	C <sub>oss</sub>		-	105	-	
Reverse Transfer Capacitance	C <sub>rss</sub>		-	88	-	



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## RATING AND CHARACTERISTIC CURVES

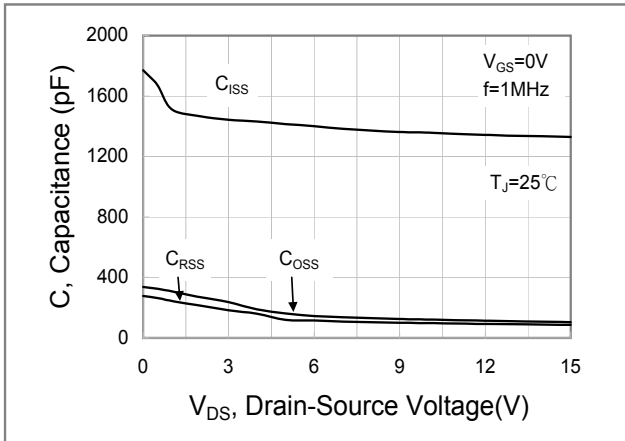


Fig.1 Capacitance Variation

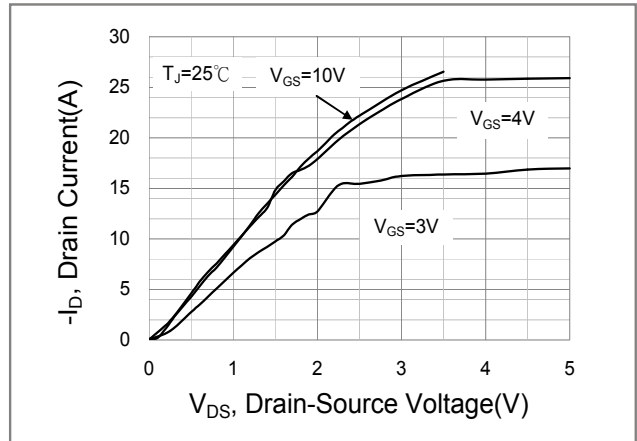


Fig.2 Drain Current VS Drain-Source Voltage

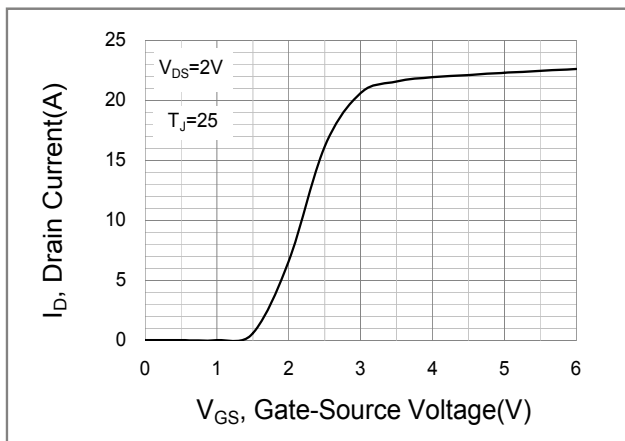


Fig.3 Drain current VS Gate Source Voltage

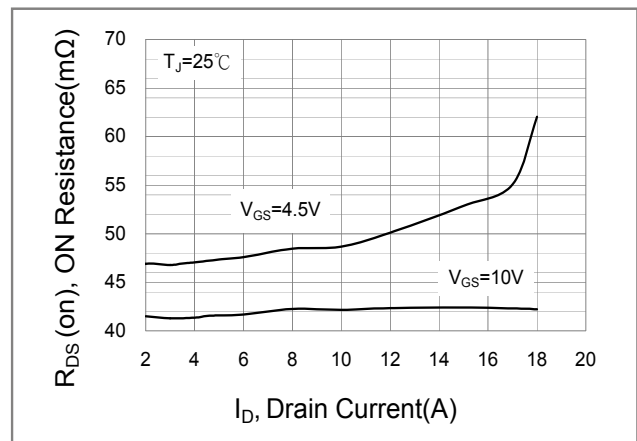


Fig.4 ON Resistance VS Drain Current

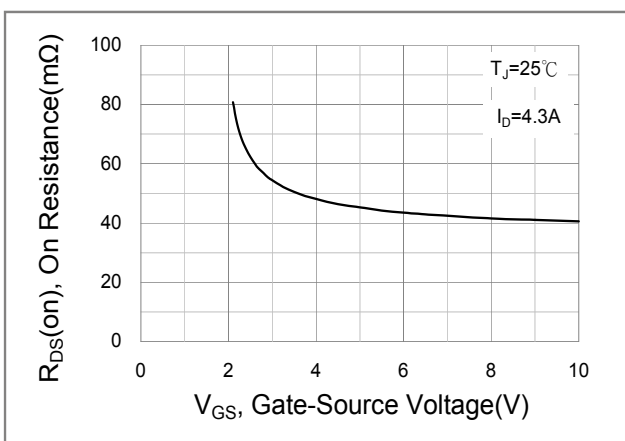


Fig.5 ON Resistance VS Gate-Source Voltage

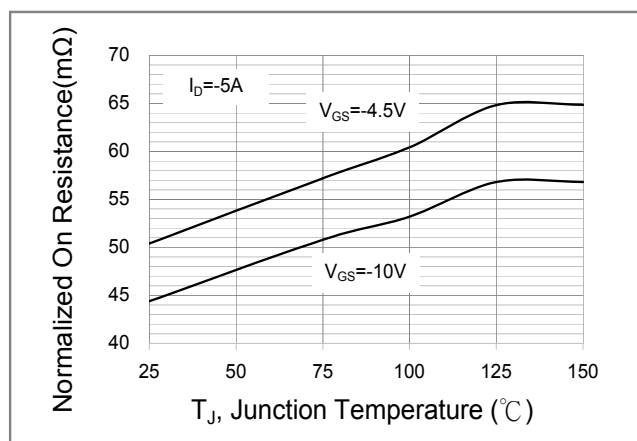


Fig.6 ON Resistance VS Junction Temperature



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## RATING AND CHARACTERISTIC CURVES

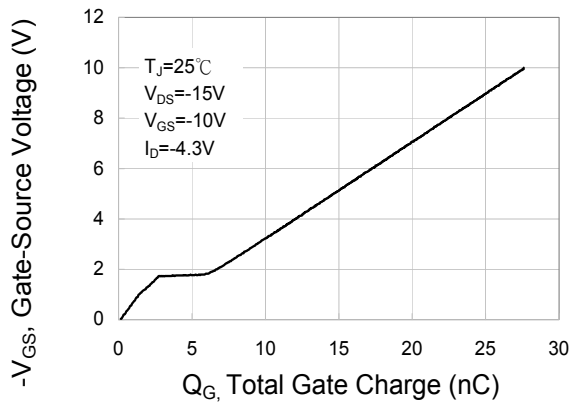


Fig.7 Gate-Charge Characteristics

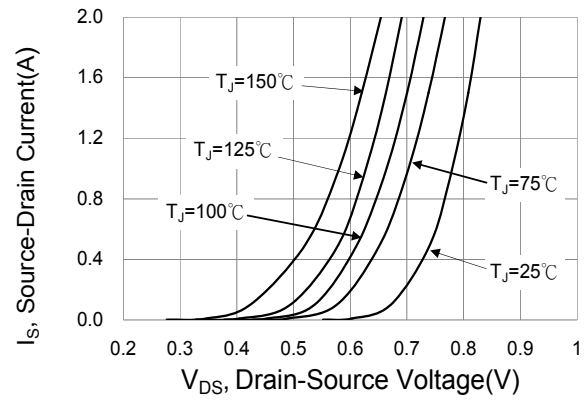
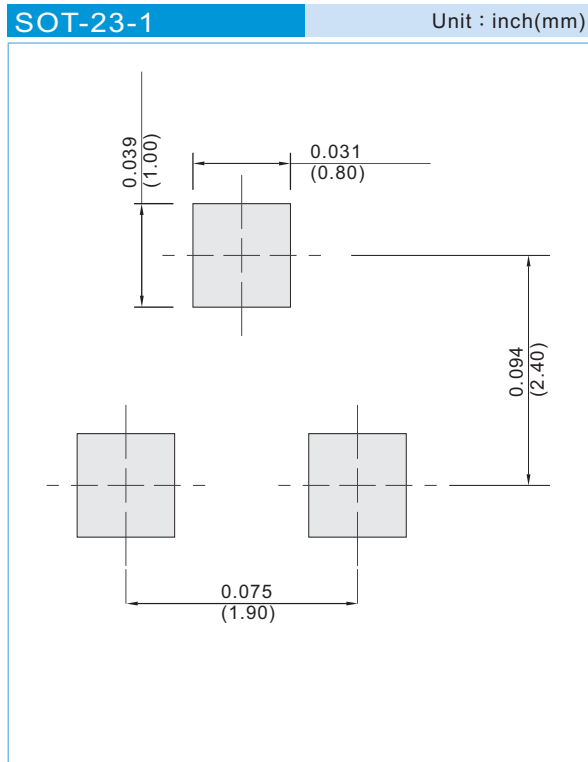


Fig.8 Source Drain Current VS Drain Source Voltage



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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

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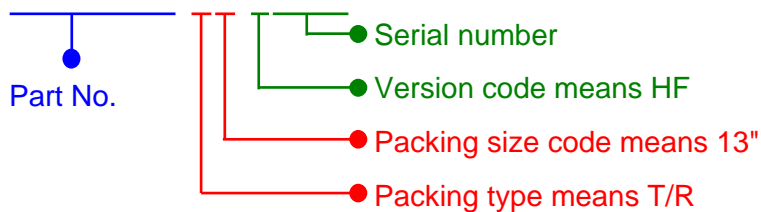


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Part No\_packing code\_Version

For example :

**RB500V-40\_R2\_00001**



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>			