



# PJS50N03

## 30V N-CHANNEL ENHANCEMENT MODE MOSFET

**VOLTAGE** 30 Volt **CURRENT** 2.9 Ampere

**SOT-23 6L** Unit : inch(mm)

### FEATURES

- $R_{DS(ON)}$ ,  $V_{GS}@10V, I_D@3.1A < 57\text{ m}\Omega$
- $R_{DS(ON)}$ ,  $V_{GS}@4.5V, I_D@2.8A < 94\text{ m}\Omega$
- 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 compliance with EU RoHS 2011/65/EU directive
- Green molding compound as per IEC61249 Std. . (Halogen Free)

### MECHANICAL DATA

- Case : SOT-23 6L Package
- Terminals : Solderable per MIL-STD-750, Method 2026
- Apporx. Weight : 0.0005 ounces, 0.014 grams
- Marking : N03

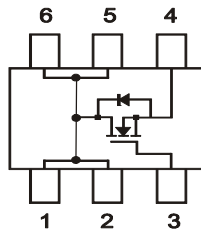
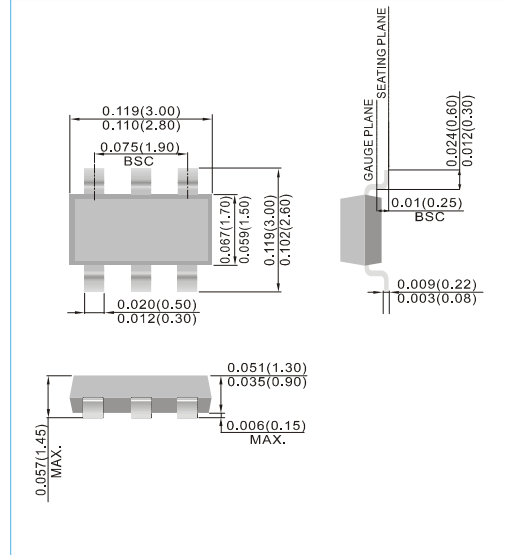


Fig.40(TOP VIEW)



### 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			$V_{GS}$	$\pm 20$	V
Continuous Drain Current	Steady-State	$T_A=25^\circ\text{C}$	$I_D$	2.9	A
Pulsed Drain Current			$I_{DM}$	16	A
Power Dissipation (Notes 1)	Steady-State	$T_A=25^\circ\text{C}$	$P_D$	0.7	W
Typical Thermal Resistance (Notes 1)			$R_{\theta JA}$	176	$^\circ\text{C/W}$
Operating Junction and Storage Temperature Range			$T_J, T_{STG}$	-55 to +150	$^\circ\text{C}$

#### NOTES:

1. Mounted on  $7.5\text{cm}^2$  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	1.0	2.0	3.0	V
Drain-Source On-State Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =3.1A	-	27	57	mΩ
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =2.8A	-	40	94	
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =30V, V <sub>GS</sub> =0V	-	-	0.5	μA
Gate -Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> = ±20V, V <sub>DS</sub> =0V	-	-	±100	nA
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =1.25A, V <sub>GS</sub> =0V	-	0.9	1.2	V
Dynamic						
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =15V, I <sub>D</sub> =3.1A V <sub>GS</sub> =10V	-	12.63	-	nC
Gate-Source Charge	Q <sub>gs</sub>		-	2.25	-	
Gate-Drain Charge	Q <sub>gd</sub>		-	2.62	-	
Turn-On Delay Time	td <sub>on</sub>	V <sub>DS</sub> =15V, V <sub>GS</sub> =10V, R <sub>G</sub> =6Ω, R <sub>L</sub> =5Ω	-	11.6	-	ns
Turn-Off Delay Time	td <sub>off</sub>		-	35.2	-	
Turn-On Rise Time	t <sub>r</sub>		-	19.6	-	
Turn-Off Fall Time	t <sub>f</sub>		-	8.2	-	
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =15V, V <sub>GS</sub> =0V f=1.0MHz	-	607	-	pF
Output Capacitance	C <sub>oss</sub>		-	66	-	
Reverse Transfer Capacitance	C <sub>rss</sub>		-	59	-	



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## RATING AND CHARACTERISTIC CURVES

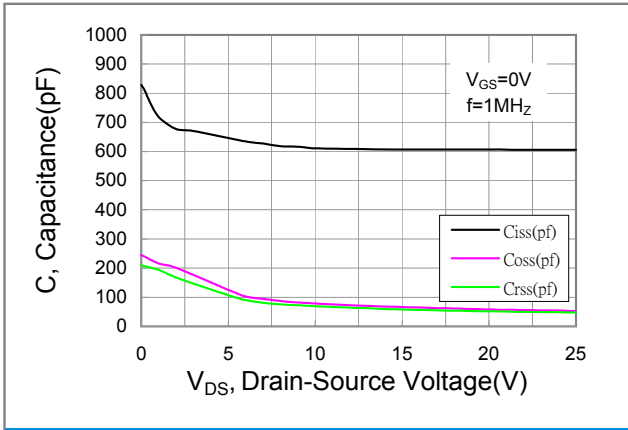


Fig.1 Capacitance Variation

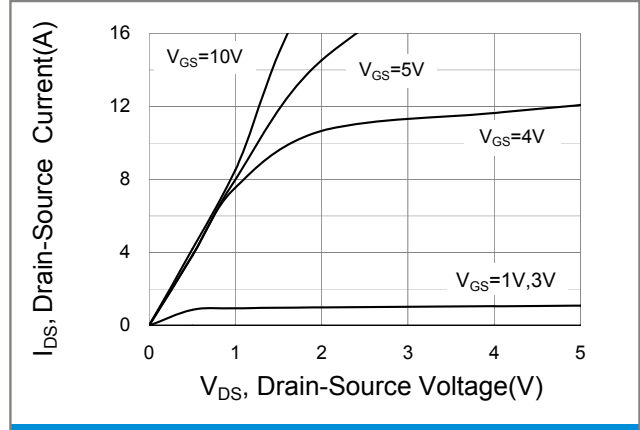


Fig.2 Drain-Source Current VS Drain-Source Voltage

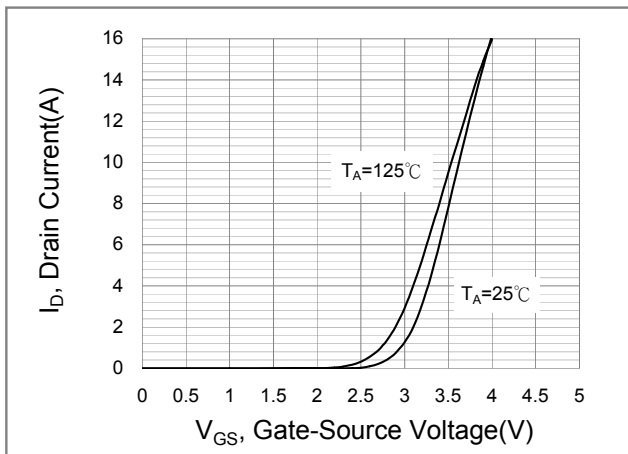


Fig.3 Drain Current VS Gate-Source Voltage

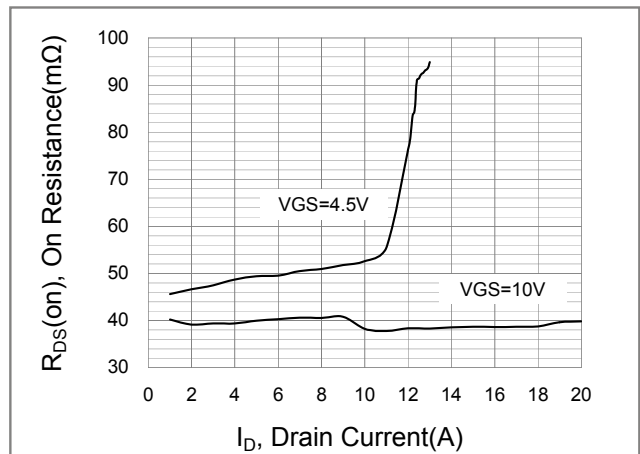


Fig.4 On-Resistance VS Drain Current

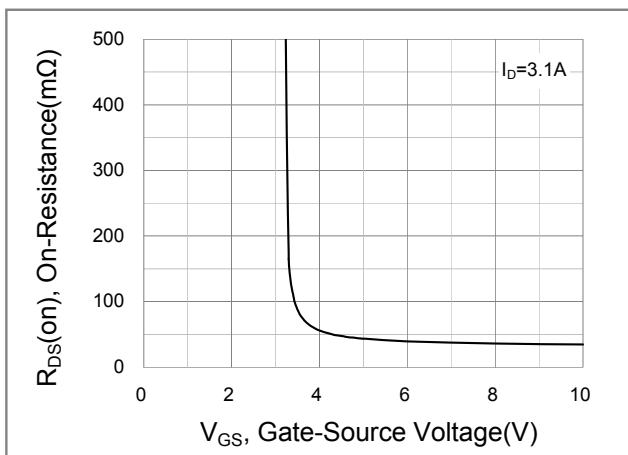


Fig.5 On-Resistance VS Gate-Source voltage

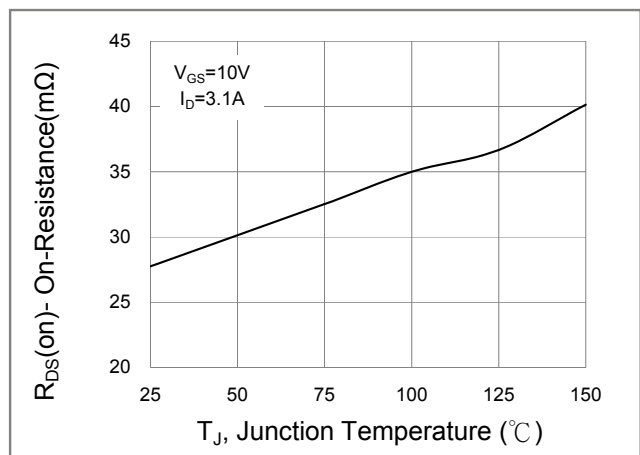


Fig.6 On-Resistance VS Junction Temperature



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## RATING AND CHARACTERISTIC CURVES

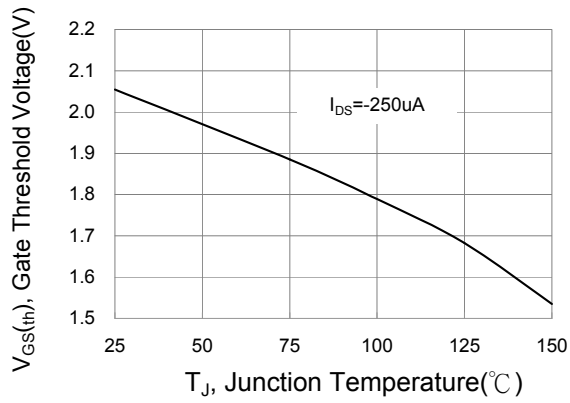


Fig.7 Gate Threshold Voltage VS Junction Temperature

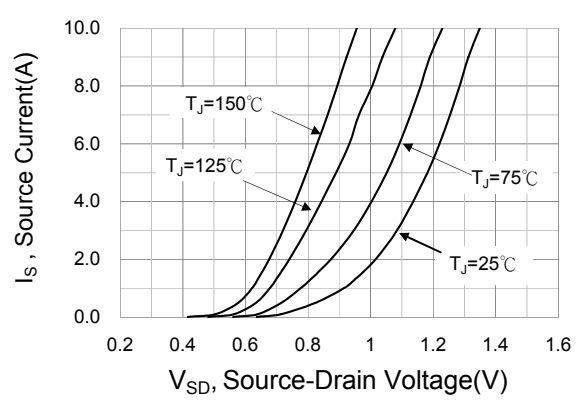


Fig.8 Body diode forward voltage

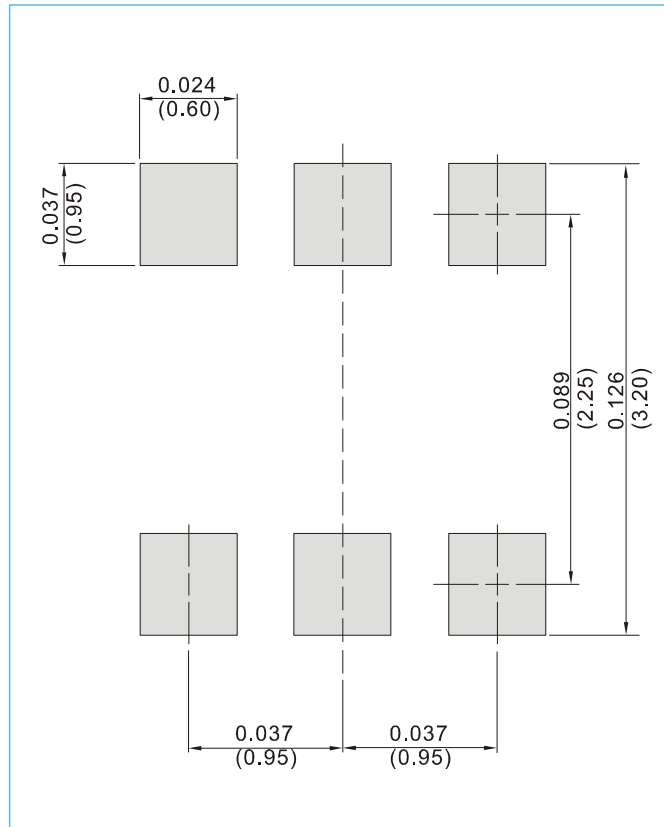


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## MOUNTING PAD LAYOUT

SOT-23 6L

Unit : inch(mm)



## ORDER INFORMATION

- Packing information  
T/R - 10K per 13" plastic Reel  
T/R - 3K per 7" plastic Reel



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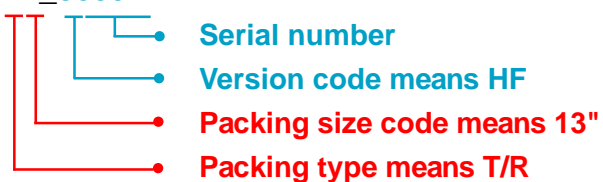
## Part No\_packing code\_Version

PJS50N03\_R1\_00001  
PJS50N03\_R2\_00001  
PJS50N03\_S1\_00001  
PJS50N03\_S2\_00001

For example :

**RB500V-40\_R2\_00001**

Part No.



Packing Code <b>XX</b>				Version Code <b>XXXXX</b>		
Packing type	1 <sup>st</sup> Code	Packing size code	2 <sup>nd</sup> Code	HF or RoHS	1 <sup>st</sup> Code	2 <sup>nd</sup> ~5 <sup>th</sup> Code
Tape and Ammunition Box (T/B)	A	N/A	0	HF	0	serial number
Tape and Reel (T/R)	R	7"	1	RoHS	1	serial number
Bulk Packing (B/P)	B	13"	2			
Tube Packing (T/P)	T	26mm	X			
Tape and Reel (Right Oriented) (TRR)	S	52mm	Y			
Tape and Reel (Left Oriented) (TRL)	L	PANASERT T/B CATHODE UP (PBCU)	U			
FORMING	F	PANASERT T/B CATHODE DOWN (PBCD)	D			



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