



# PJA87P03

## 30V P-Channel ENHANCEMENT MODE MOSFET

**Voltage**

**30 V**

**Current**

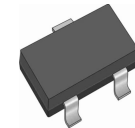
**4 A**

### Features

- $R_{DS(ON)}$ ,  $V_{GS}@-4.5V, I_D@-3A < 87\text{ m}\Omega$
- $R_{DS(ON)}$ ,  $V_{GS}@-10V, I_D@-4.1A < 55\text{ m}\Omega$
- 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, 0.0084 grams
- Marking:87



SOT-23

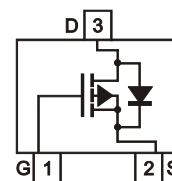


Fig.80 (TOP VIEW)

### 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	$V_{GS}$	+20	V
Continuous Drain Current	$I_D$	$T_a=25^\circ\text{C}$	-4
		$T_a=70^\circ\text{C}$	-3.5
Pulsed Drain Current <sup>(Note 1)</sup>	$I_{DM}$	20	A
Power Dissipation <sup>(Note 1)</sup>	$P_D$	$T_a=25^\circ\text{C}$	1.19
		$T_a=70^\circ\text{C}$	0.75
Operating Junction and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150	$^\circ\text{C}$
Thermal resistance	$R_{\theta JA}$	125	$^\circ\text{C/W}$
- Junction to Ambient <sup>(Note 1)</sup>			



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## Electrical Characteristics ( $T_A=25^{\circ}\text{C}$ unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
<b>Static</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-30	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1	-1.55	-3	V
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS}=-10V, I_D=-4.1A$	-	46	55	m $\Omega$
		$V_{GS}=-4.5V, I_D=-3A$	-	69	87	
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=-30V, V_{GS}=0V$	-	-	-1	$\mu A$
Gate-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	$\pm 100$	nA
Diode Forward Voltage	$V_{SD}$	$I_S=-1A, V_{GS}=0V$	-	-0.81	-1	V
<b>Dynamic</b>						
Total Gate Charge	$Q_g$	$V_{DS}=-15V, I_D=-4A,$ $V_{GS}=-4.5V$	-	6.1	-	nC
Gate-Source Charge	$Q_{gs}$		-	2	-	
Gate-Drain Charge	$Q_{gd}$		-	2.3	-	
Input Capacitance	$C_{iss}$	$V_{DS}=-15V, V_{GS}=0V,$ $f=1.0MHz$	-	629	-	pF
Output Capacitance	$C_{oss}$		-	73	-	
Reverse Transfer Capacitance	$C_{rss}$		-	61	-	
<b>Switching</b>						
Turn-On Delay Time	$t_{d(on)}$	$V_{DS}=-15V, V_{GS}=-10V,$ $R_G=3.3\Omega, R_G=3.9\Omega,$	-	55	-	ns
Turn-Off Delay Time	$t_{d(off)}$		-	22.5	-	
Turn-On Rise Time	$t_r$		-	33.9	-	
Turn-Off Fall Time	$t_f$		-	9.8	-	

NOTES:

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



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## TYPICAL CHARACTERISTIC CURVES

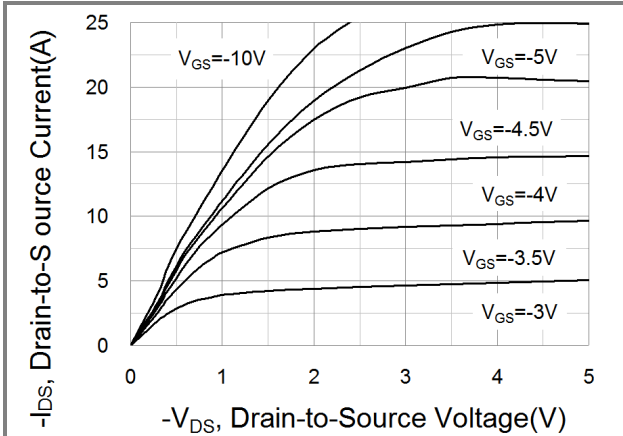


Fig.1 Output Characteristics

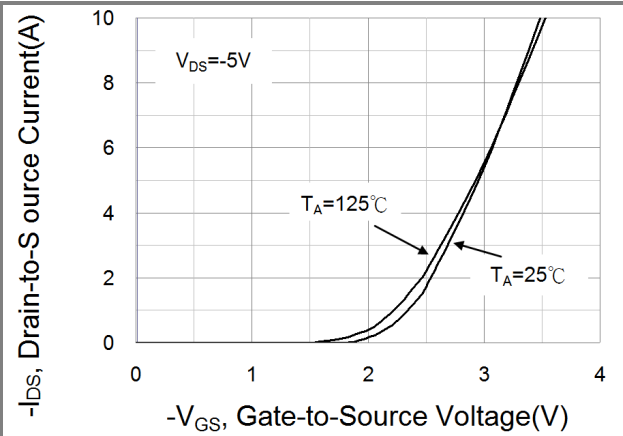


Fig.2 Transfer Characteristics

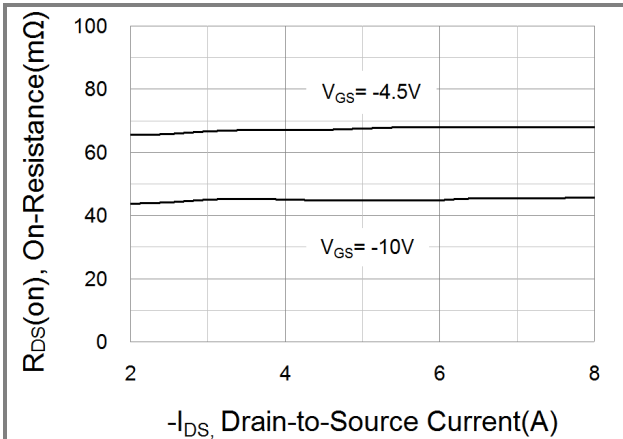


Fig.3 On-Resistance vs. Drain Current

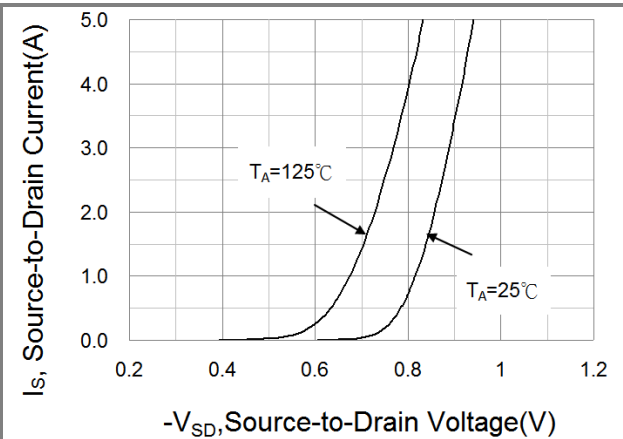


Fig.4 Source-Drain Diode Forward Voltage

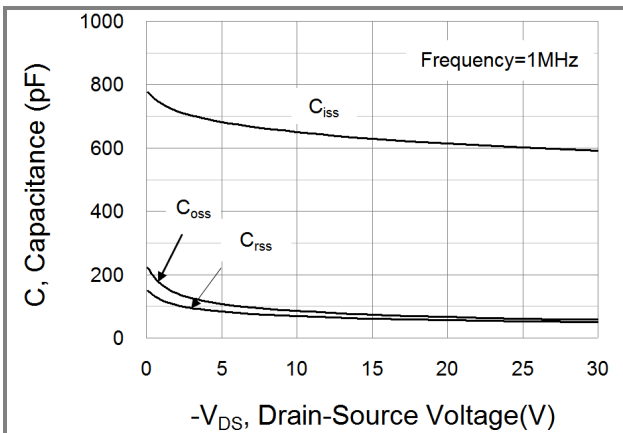


Fig.5 Capacitance vs. Drain-Source Voltage

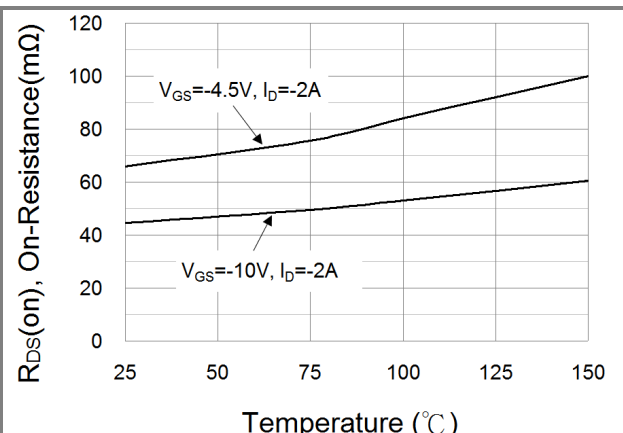


Fig.6 On-Resistance vs. Junction temperature



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## TYPICAL CHARACTERISTIC CURVES

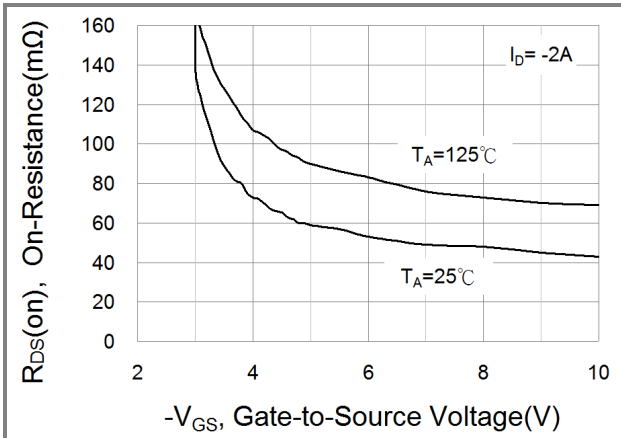
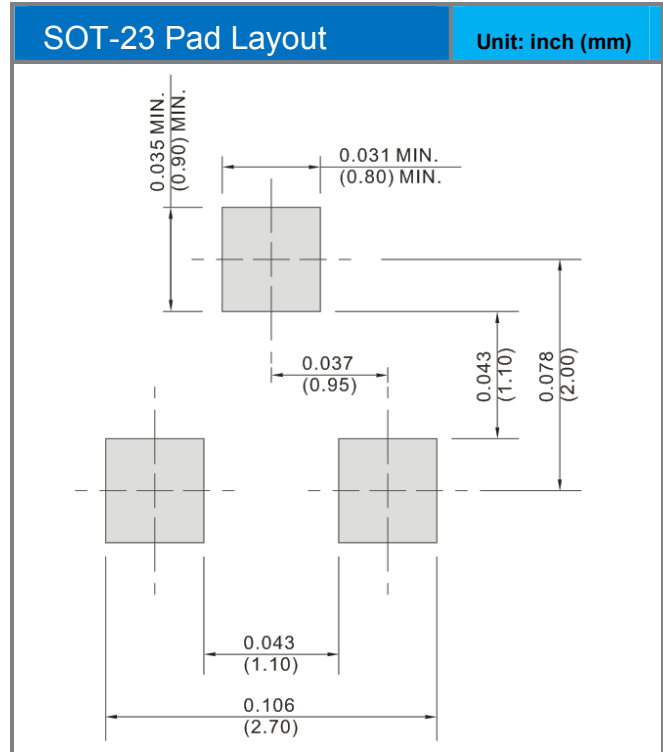
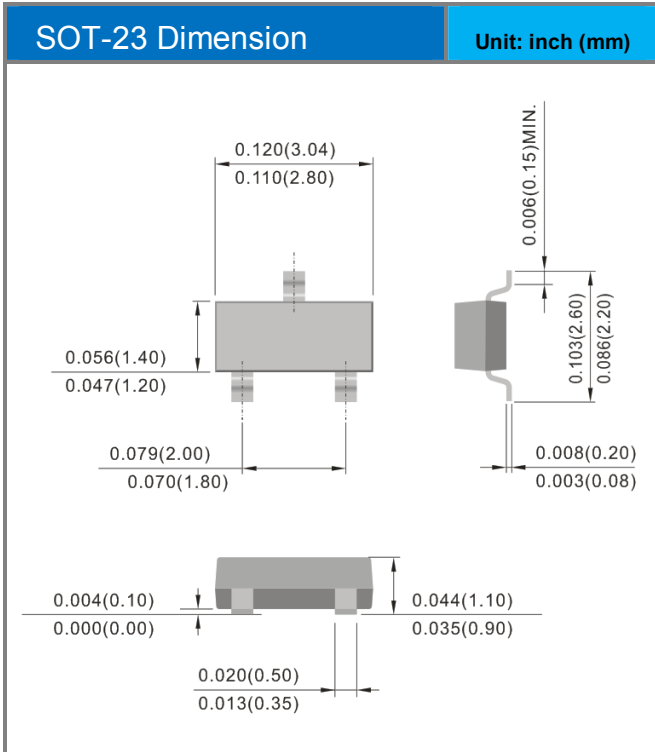


Fig.7 On-Resistance vs. Gate-Source Voltage



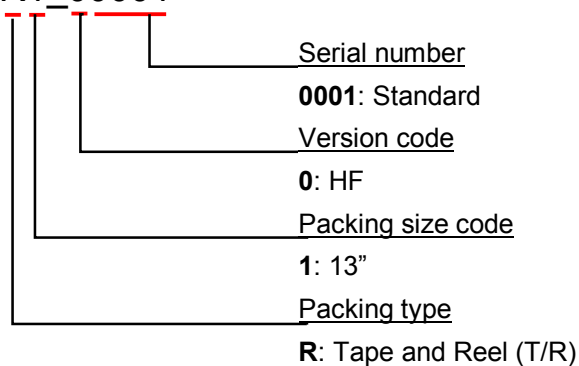
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## MECHANICAL DATA



## ORDER INFORMATION

PJA87P03\_R1\_00001





## PJA87P03

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