



PJA45N02

20V N-CHANNEL ENHANCEMENT MODE MOSFET

VOLTAGE 20 Volts **CURRENT** 3.6 Amperes

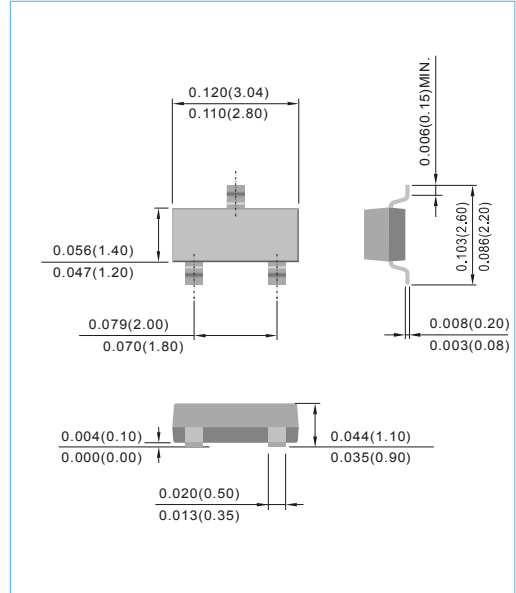
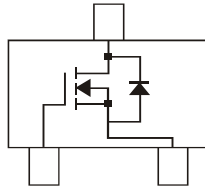
SOT-23 Unit : inch(mm)

FEATURES

- $R_{DS(ON)}, V_{GS}@1.8V, I_D@1.5A < 87m\Omega$
- $R_{DS(ON)}, V_{GS}@4.5V, I_D@3.6A < 40m\Omega$
- 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 : 45



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}	± 8	V
Continuous Drain Current (Notes 1)	Steady-State	$T_A=25^\circ\text{C}$	I_D	2.9	A
	Steady-State	$T_A=70^\circ\text{C}$		2.3	
Pulsed Drain Current (Notes 1)			I_{DM}	10	A
Power Dissipation (Notes 1)	Steady-State	$T_A=25^\circ\text{C}$	P_D	700	mW
		$T_A=70^\circ\text{C}$		400	
Typical Thermal Resistance (Notes 1)			$R_{\theta JA}$	178	$^\circ\text{C}/\text{W}$
Operating Junction and Storage Temperature Range			T_J, T_{STG}	-55 to + 150	$^\circ\text{C}$

NOTES:

1. Mounted on minimum pad layout.
2. Mounted on 48cm² FR-4PCB.



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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 =250μA	20	-	-	V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.5	0.6	1	V
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} =4.5V, I _D =3.6A	-	40	-	mΩ
		V _{GS} =2.5V, I _D =3.1A	-	47	53	
		V _{GS} =1.8V, I _D =1.5A	-	55	87	
		V _{GS} =1.5V, I _D =1.0A	-	65	-	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =16V, V _{GS} =0V	-	-	0.5	μA
Gate -Source Leakage Current	I _{GSS}	V _{GS} =±8V, V _{DS} =0V	-	-	±100	nA
Dynamic						
Forward Transconductance	g _{FS}	V _{DS} =5V, I _D =3.1A	-	11	-	S
Total Gate Charge	Q _{g(tot)}	V _{DS} =10V, I _D =2.7A V _{GS} =4.5V	-	6.5	-	nC
Threshold Gate Charge	Q _{g(th)}		-	0.6	-	
Gate-Source Charge	Q _{gs}		-	0.8	-	
Gate-Drain Charge	Q _{gd}		-	1.5	-	
Turn-On Delay Time	td _{on}	V _{DD} =10V, V _{GS} =4.5V, R _G =6Ω, R _L =3Ω	-	5	-	ns
Turn-Off Delay Time	td _{off}		-	30	-	
Turn-On Rise Time	t _r		-	6	-	
Turn-Off Fall Time	t _f		-	8	-	
Input Capacitance	C _{iss}	V _{DS} =10V, V _{GS} =0V f=1.0MHz	-	500	-	pF
Output Capacitance	C _{oss}		-	68	-	
Reverse Transfer Capacitance	C _{rss}		-	60	-	
Source-Drain Diode						
Diode Forward Voltage	V _{SD}	I _S =1A, V _{GS} =0V	-	0.62	1.2	V



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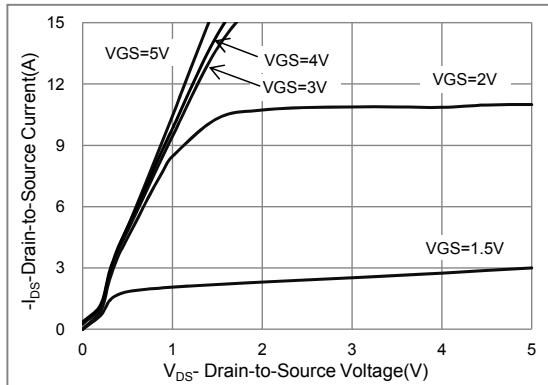


Fig.1 Output Characteristics

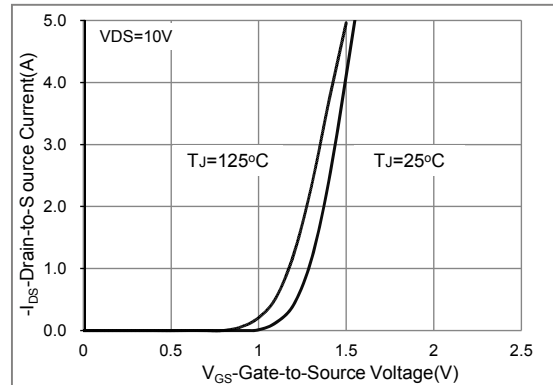


Fig.2 Transfer Characteristics

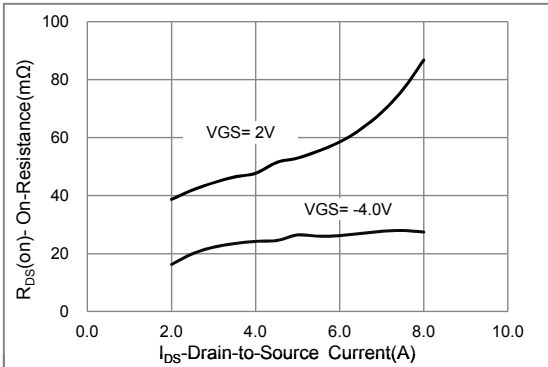


Fig.3 On-Resistance vs. Drain current

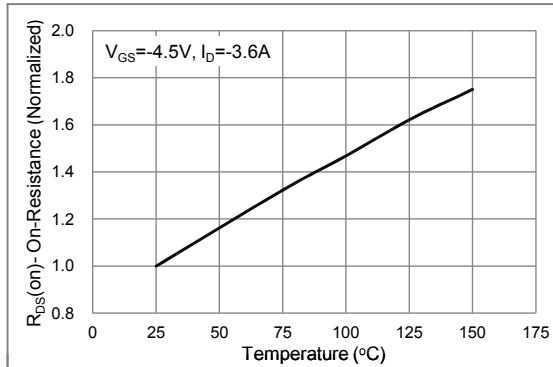


Fig.4 On-Resistance vs. Junction temperature

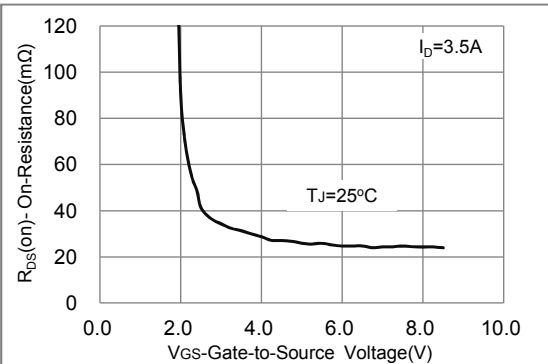


Fig.5 On-Resistance vs. V_GS vs Temperature

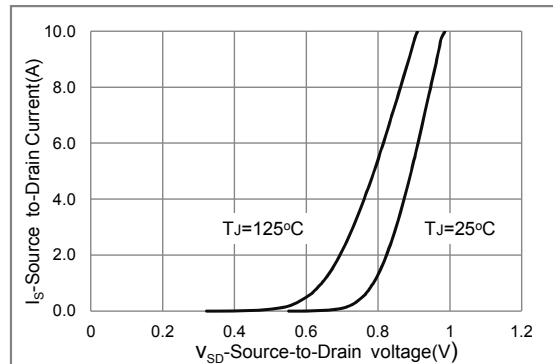


Fig.6 Body Diode Characteristics

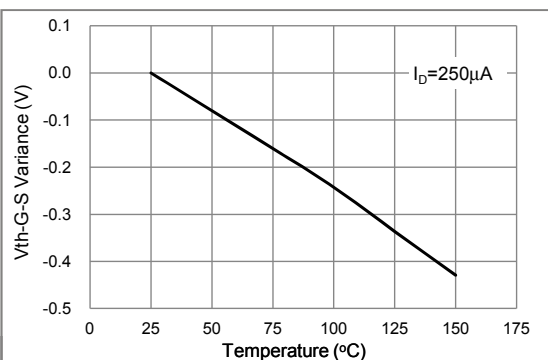
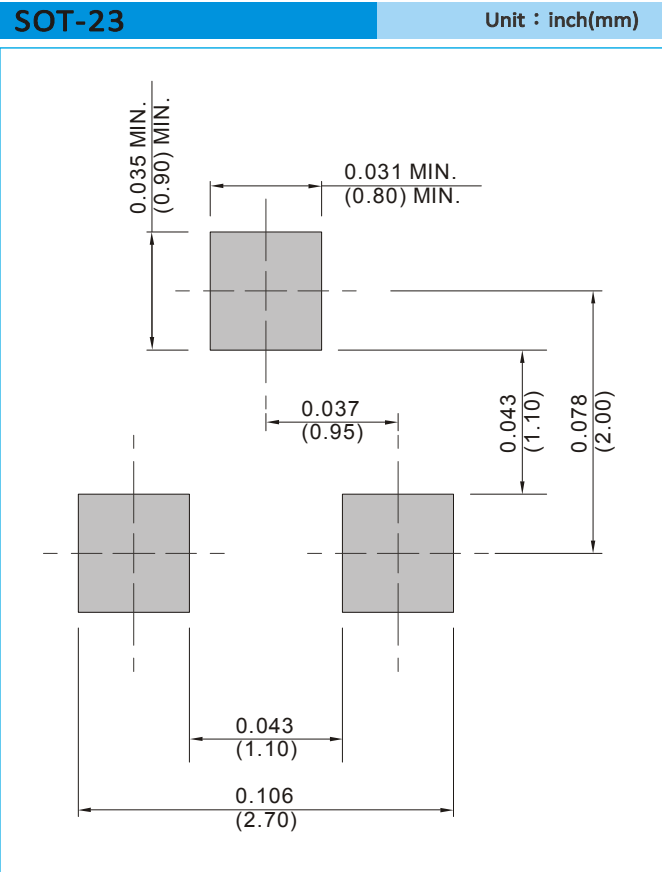


Fig.7 Threshold Voltage Variation with Temperature



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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



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Part No_packing code_Version

PJA45N02_R1_00001

PJA45N02_R2_00001

For example :

RB500V-40_R2_00001



Packing Code XX				Version Code XXXXX		
Packing type	1 st Code	Packing size code	2 nd Code	HF or RoHS	1 st Code	2 nd ~5 th 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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