

PJB24N10

100V N-Channel Enhancement Mode MOSFET

FEATURES

- $R_{DS(ON)}$, $V_{GS}@10V, I_{DS}@30A=24m\Omega$
- Low On Resistance
- Excellent Gate Charge x $R_{DS(ON)}$ Product (FOM)
- Fully Characterized Avalanche Voltage and Current
- Specially Designed for AC Adapter, High-Frequency Switch and Synchronous Rectification
- Component are in compliance with EU RoHS 2002/95/EC directives

MECHANICAL DATA

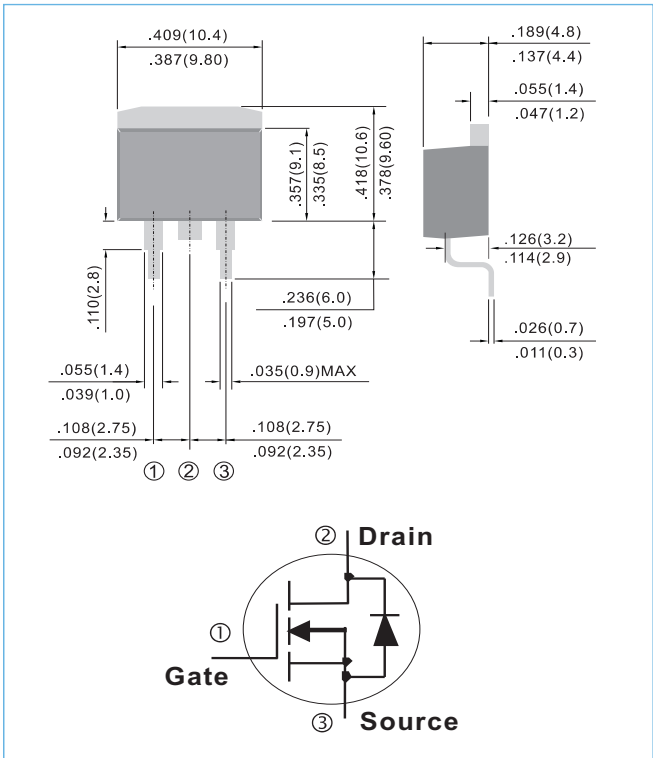
- Case: TO-263 Molded Plastic
- Terminals : Solderable per MIL-STD-750,Method 2026

ORDERING INFORMATION

TYPE	MARKING	PACKAGE	PACKING
PJB24N10	B24N10	TO-263	800PCS/REEL

TO-263 / D²PAK

Unit: inch (mm)



Maximum RATINGS and Thermal Characteristics (T_A=25°C unless otherwise noted)

PARAMETER	Symbol	Limit	Units
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	42	A
Pulsed Drain Current ¹⁾	I_{DM}	160	A
Maximum Power Dissipation Derating Factor	P_D	105 0.84	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C
Avalanche Energy with Single Pulse $I_{AS}=17A, V_{DD}=80V, L=4.7mH$	E_{AS}	680	mJ
Junction-to-Case Thermal Resistance	$R_{\theta JC}$	1.2	°C/W
Junction-to Ambient Thermal Resistance	$R_{\theta JA}$	62.5	°C/W

Note: 1. Maximum DC current limited by the package

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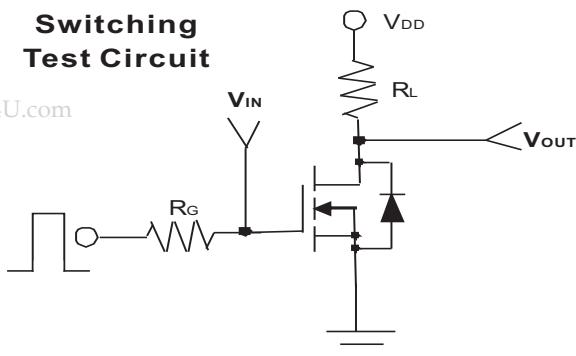
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ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

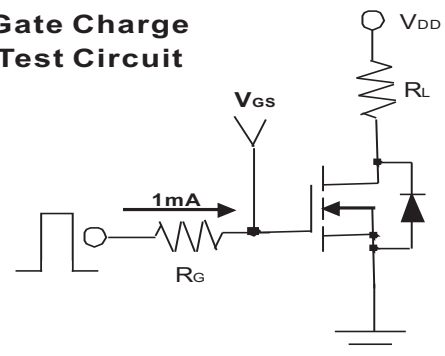
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Units
Static						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250uA	100	-	-	V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250uA	2.0	-	4.0	V
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 30A	-	18.6	24	mΩ
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =80V, V _{GS} =0V	-	-	1	uA
Gate Body Leakage	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
Dynamic						
Total Gate Charge	Q _g	V _{DS} =50V, I _D =30A, V _{GS} =10V	-	60.6	78	nC
Gate-Source Charge	Q _{gs}		-	8.2	-	
Gate-Drain Charge	Q _{gd}		-	21.4	-	
Turn-On Delay Time	t _{d(on)}	V _{DD} =50V, I _D =1A V _{GS} =10V, R _G =1.6Ω	-	18.4	26	ns
Turn-On Rise Time	t _r		-	9.2	12	
Turn-Off Delay Time	t _{d(off)}		-	56	68	
Turn-Off Fall Time	t _f		-	18.8	26	
Input Capacitance	C _{iss}	V _{DS} =50V, V _{GS} =0V f=1.0MH _z	-	1450	3200	pF
Output Capacitance	C _{oss}		-	155	200	
Reverse Transfer Capacitance	C _{rss}		-	110	165	
Source-Drain Diode						
Max. Diode Forward Current	I _S	-	-	-	42	A
Diode Forward Voltage	V _{SD}	I _S =30A , V _{GS} =0V	-	-	1.3	V

NOTE: Plus Test : Pluse Width ≤ 300us, Duty Cycle ≤ 2%.

Switching Test Circuit

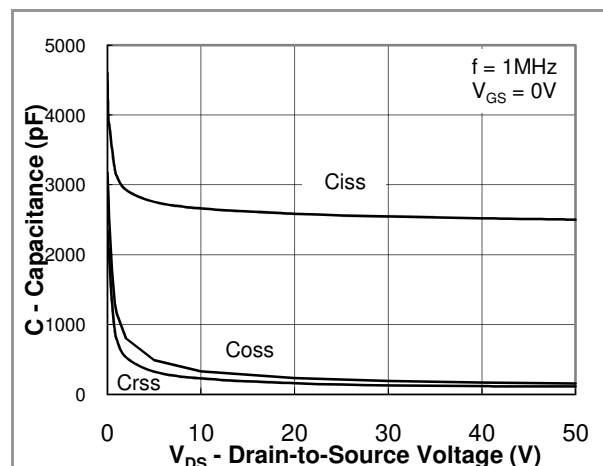
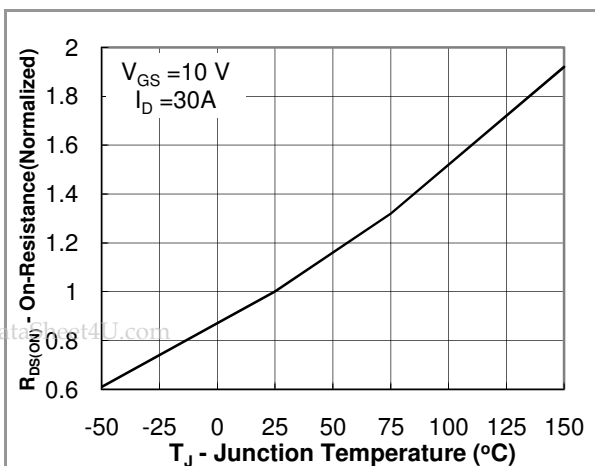
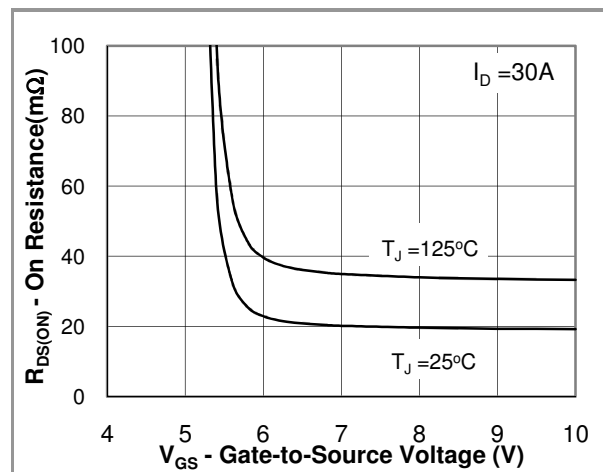
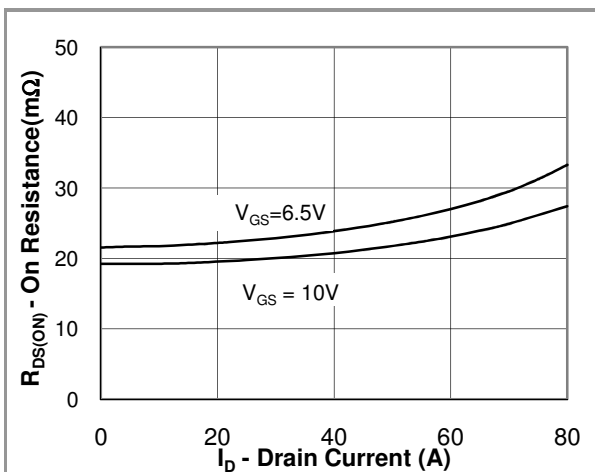
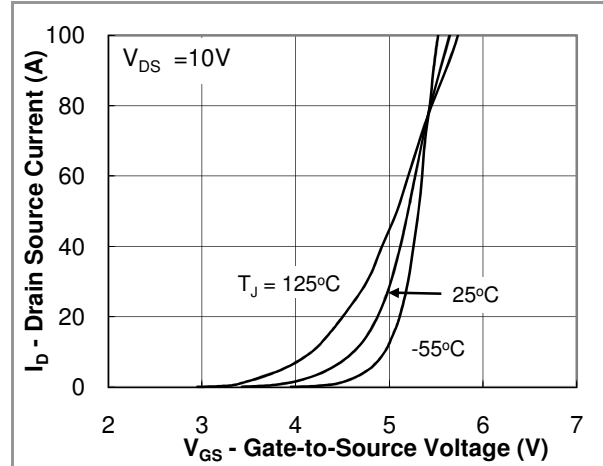
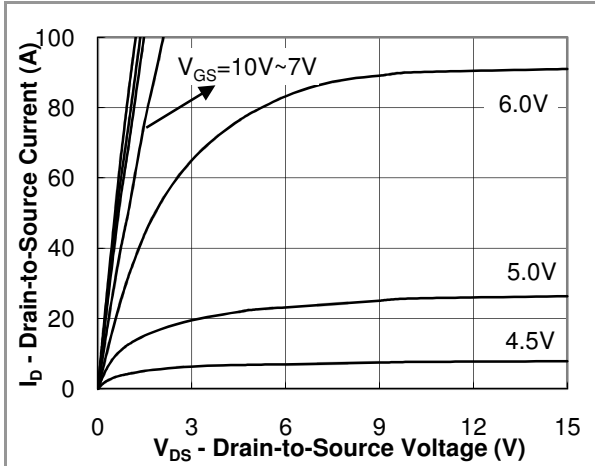


Gate Charge Test Circuit



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Typical Characteristics Curves ($T_a=25^\circ\text{C}$, unless otherwise noted)



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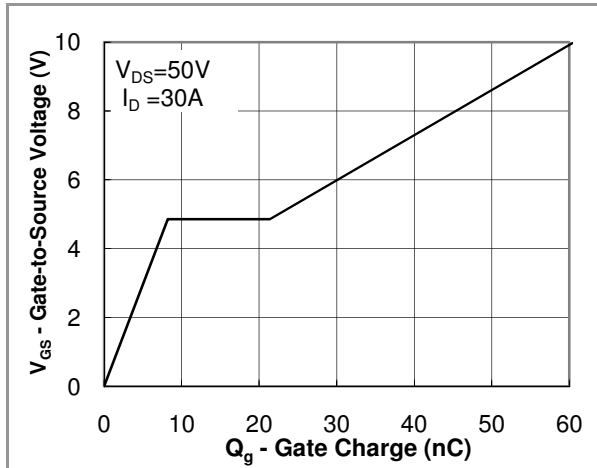


Fig. 7 Gate Charge Waveform

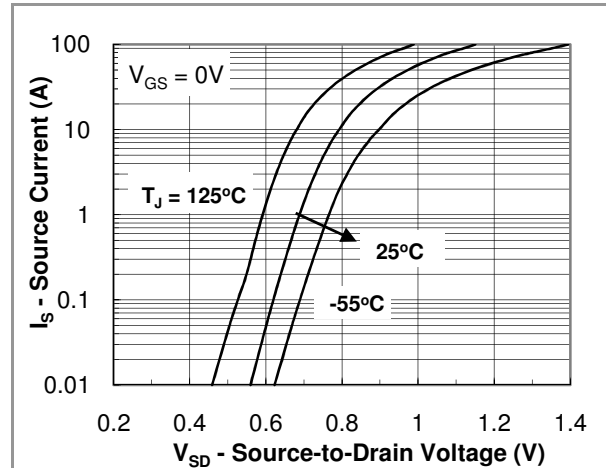


Fig.8 Source-Drain Diode Forward Voltage

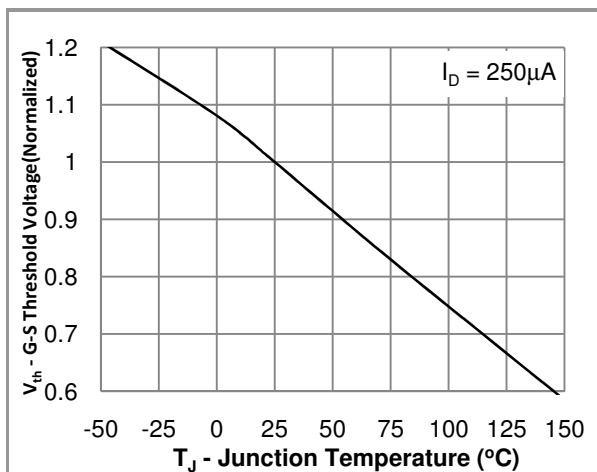


Fig.9 Breakdown Voltage vs Junction Temperature



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