

FS7VS-12A

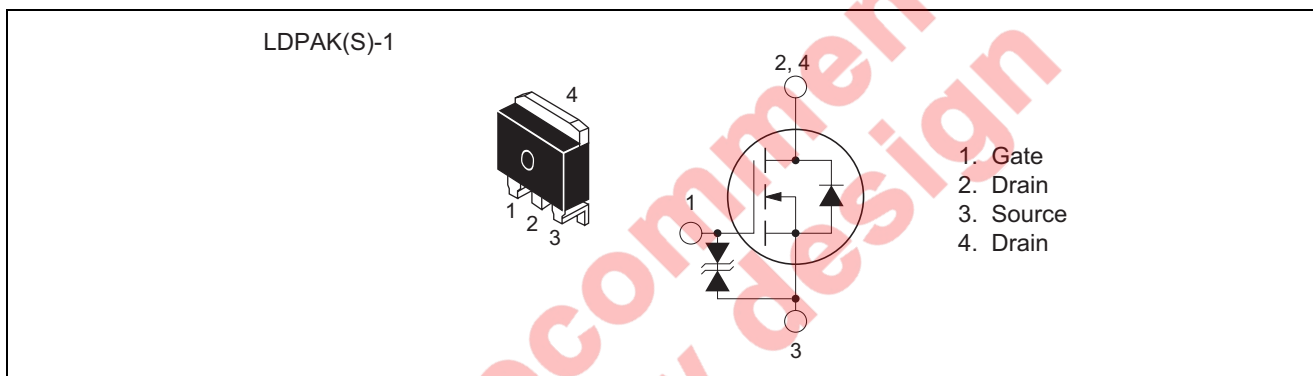
High-Speed Switching Use
Nch Power MOS FET

REJ03G0271-0100
Under development
Rev.1.00
Aug.20.2004

Features

- Drive voltage : 10 V
- V_{DSS} : 600 V
- $r_{DS(ON)(max)}$: 1.3 Ω
- I_D : 7 A

Outline



Applications

SMPS, lamp ballast, etc.

Maximum Ratings

($T_c = 25^\circ\text{C}$)

Parameter	Symbol	Ratings	Unit	Conditions
Drain-source voltage	V_{DSS}	600	V	$V_{GS} = 0\text{ V}$
Gate-source voltage	V_{GSS}	± 30	V	$V_{DS} = 0\text{ V}$
Drain current	I_D	7	A	
Drain current (Pulsed)	I_{DM}	21	A	
Avalanche current (Pulsed)	I_{DA}	7	A	$L = 200\ \mu\text{H}$
Maximum power dissipation	P_D	100	W	
Channel temperature	T_{ch}	- 55 to +150	$^\circ\text{C}$	
Storage temperature	T_{stg}	- 55 to +150	$^\circ\text{C}$	
Mass	—	1.2	g	Typical value

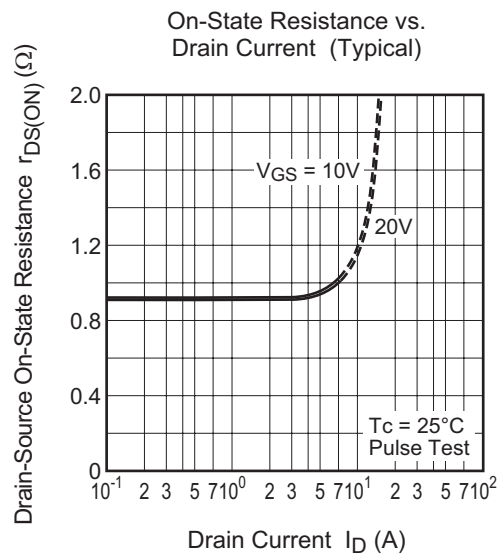
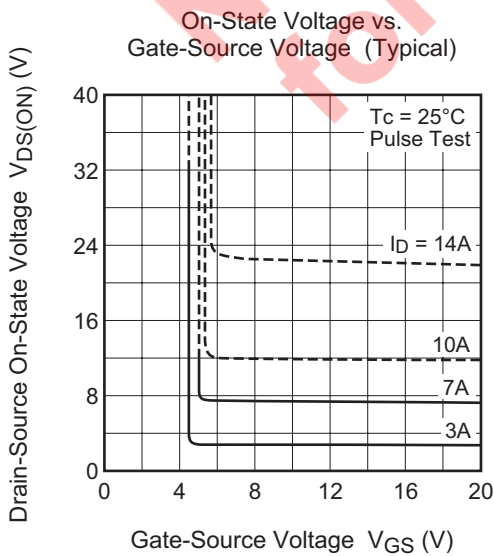
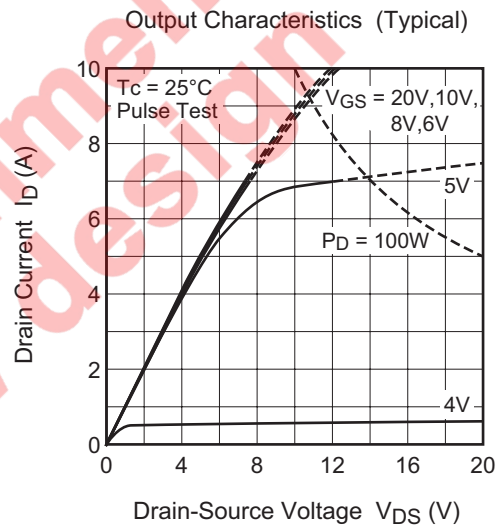
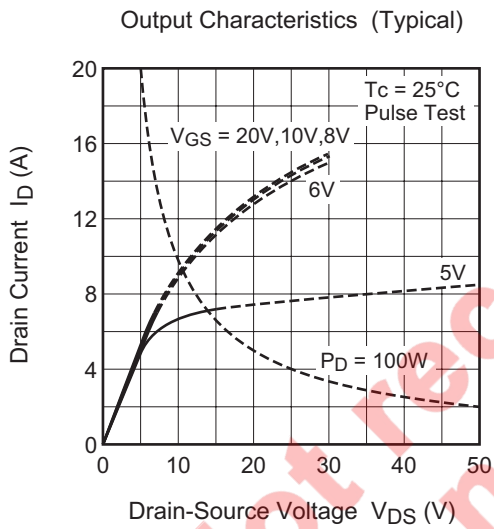
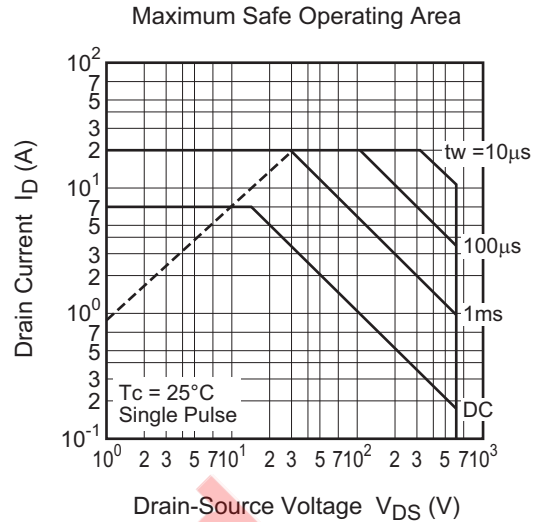
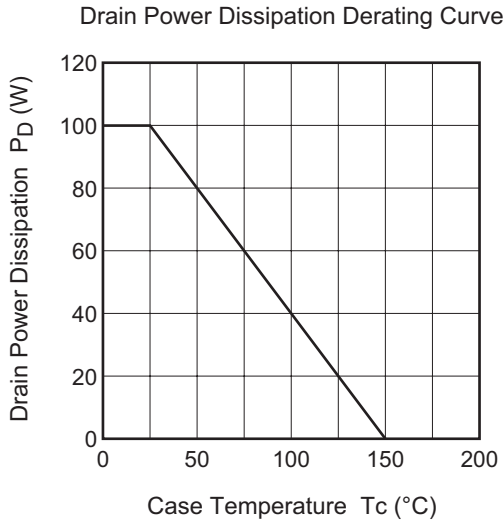
Electrical Characteristics

(T_{ch} = 25°C)

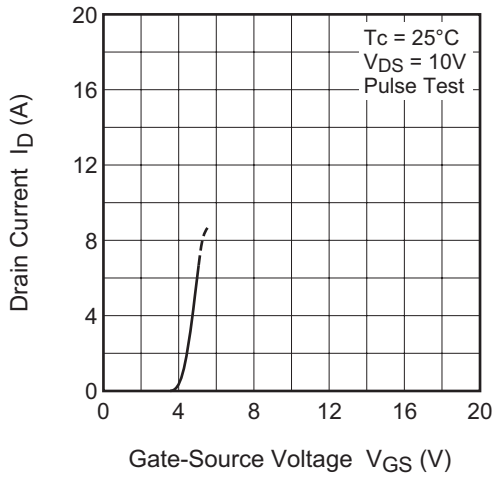
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test conditions
Drain-source breakdown voltage	V _{(BR)DSS}	600	—	—	V	I _D = 1 mA, V _{GS} = 0 V
Gate-source breakdown voltage	V _{(BR)GSS}	±30	—	—	V	I _G = ±100 μA, V _{DS} = 0 V
Gate-source leakage current	I _{GSS}	—	—	±10	μA	V _{GS} = ±25 V, V _{DS} = 0 V
Drain-source leakage current	I _{DSS}	—	—	1	mA	V _{DS} = 600 V, V _{GS} = 0 V
Gate-source threshold voltage	V _{GS(th)}	2.5	3.0	3.5	V	I _D = 1 mA, V _{DS} = 10 V
Drain-source on-state resistance	r _{DS(ON)}	—	1.0	1.3	Ω	I _D = 3 A, V _{GS} = 10 V
Drain-source on-state voltage	V _{DS(ON)}	—	3.0	3.9	V	I _D = 3 A, V _{GS} = 10 V
Forward transfer admittance	y _{fs}	4.2	7.0	—	S	I _D = 3 A, V _{DS} = 10 V
Input capacitance	C _{iss}	—	1100	—	pF	V _{DS} = 25 V, V _{GS} = 10 V, f = 1MHz
Output capacitance	C _{oss}	—	100	—	pF	
Reverse transfer capacitance	C _{rss}	—	25	—	pF	
Turn-on delay time	t _{d(on)}	—	20	—	ns	V _{DD} = 200 V, I _D = 3 A, V _{GS} = 10 V, R _{GEN} = R _{GS} = 50 Ω
Rise time	t _r	—	25	—	ns	
Turn-off delay time	t _{d(off)}	—	150	—	ns	
Fall time	t _f	—	35	—	ns	
Source-drain voltage	V _{SD}	—	1.5	2.0	V	I _S = 3 A, V _{GS} = 0 V
Thermal resistance	R _{th(ch-c)}	—	—	1.25	°C/W	Channel to case

Not recommended
for new designs

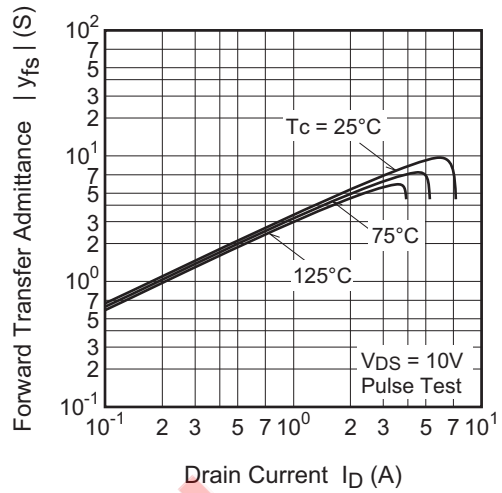
Performance Curves



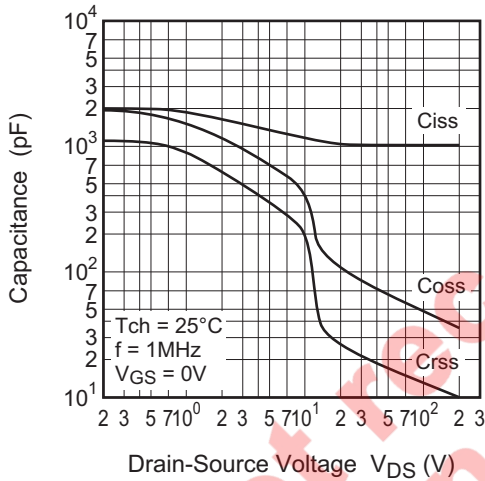
Transfer Characteristics (Typical)



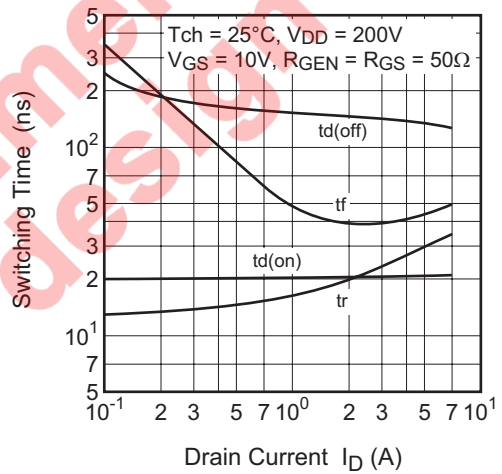
Forward Transfer Admittance vs. Drain Current (Typical)



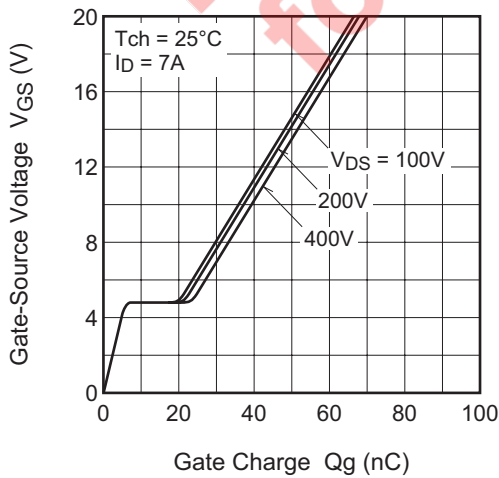
Capacitance vs. Drain-Source Voltage (Typical)



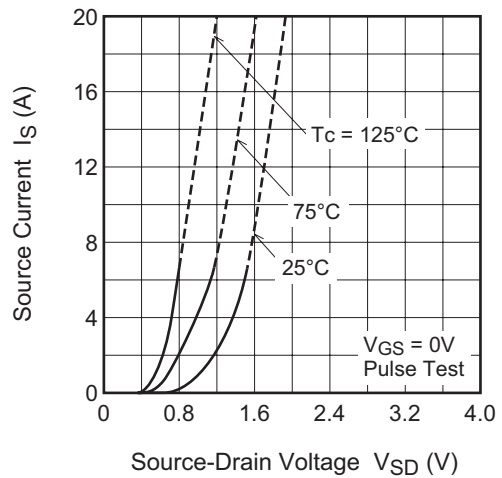
Switching Characteristics (Typical)

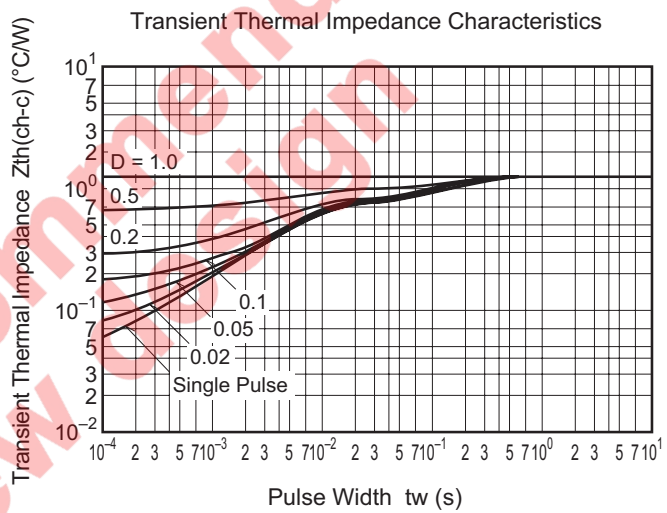
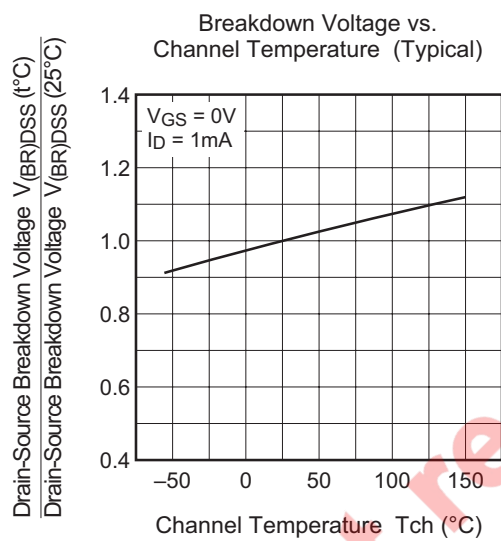
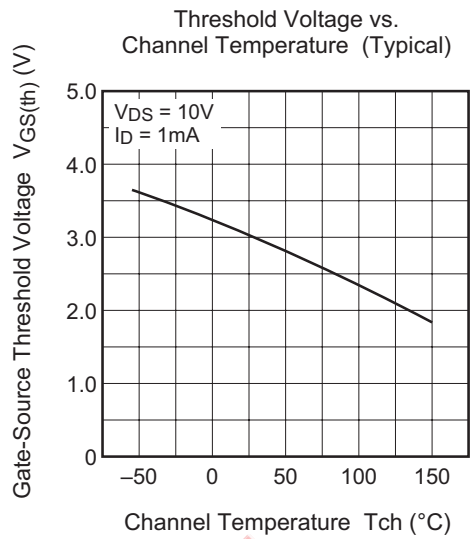
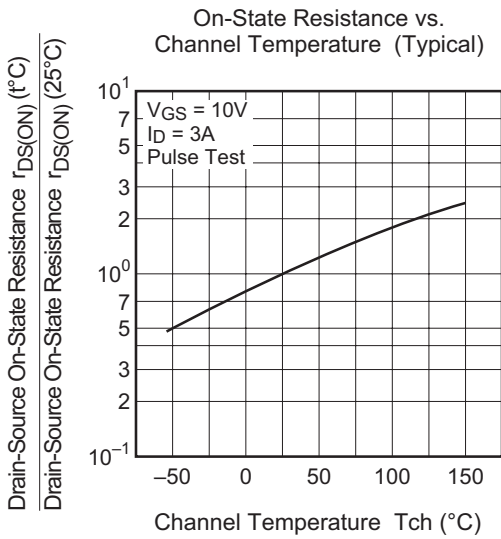


Gate-Source Voltage vs. Gate Charge (Typical)

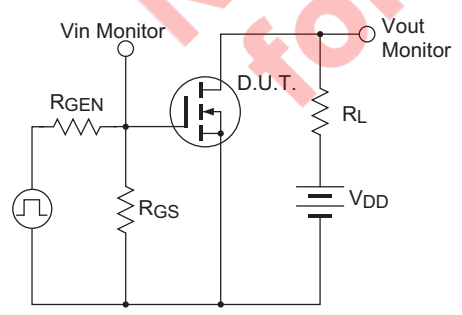


Source-Drain Diode Forward Characteristics (Typical)

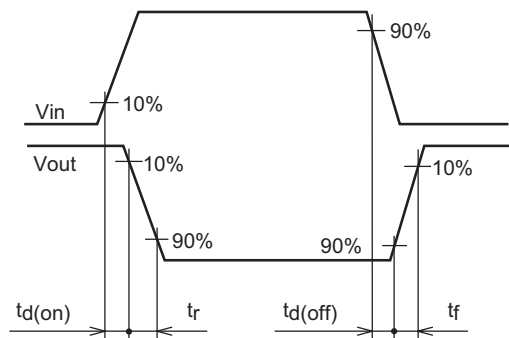




Switching Time Measurement Circuit

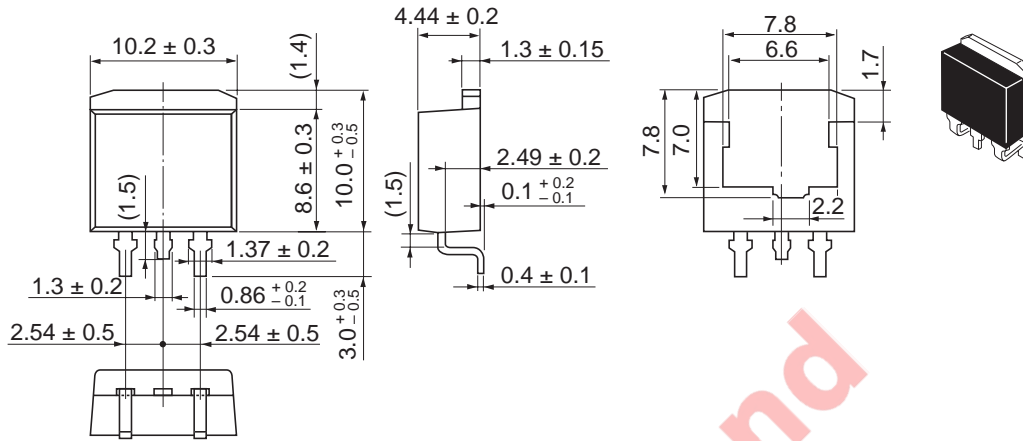


Switching Waveform



Package Dimensions

As of January, 2003
Unit: mm



Package Code	LDBAK (S)-(1)
JEDEC	—
JEITA	—
Mass (reference value)	1.30 g

Order Code

Lead form	Standard packing	Quantity	Standard order code	Standard order code example
Surface-mounted type	Taping	1000	Type name – T +Direction (1 or 2) +1	FS7VS-12A-T11

Note : Please confirm the specification about the shipping in detail.

Not recommended for new design

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