

Features

- Very low FOM $R_{DS(on)} \times Q_G$
- 100% Avalanche Tested

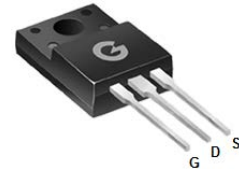
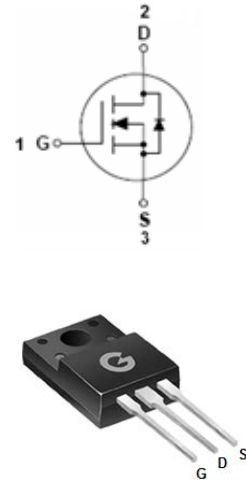
HF

APPLICATIONS

- Switch Mode Power Supply (SMPS)
- Power Factor Correction (PFC)
- Uninterruptible Power Supply (UPS)

Mechanical Data

- Case: ITO-220AB
- Molding Compound: UL Flammability Classification Rating 94V-0
- Terminals: Matte tin-plated leads; solderability-per MIL-STD-202, Method 208



ITO-220AB

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
SJ80R750F	ITO-220AB	50 pcs / Tube	SJ80R750F

Maximum Ratings (@ $T_J = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	800	V
Gate-Source Voltage	V_{GS}	± 30	V
Continuous Drain Current	I_D	8	A
Pulsed Drain Current ^{*1}	I_{DM}	24	A
Single Pulse Avalanche Energy ^{*2}	E_{AS}	211	mJ

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation ($T_C = 25^\circ\text{C}$)	P_D	31.3	W
Thermal Resistance Junction-to-Air	$R_{\theta JA}$	80	$^\circ\text{C/W}$
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	4	$^\circ\text{C/W}$
Operating Junction Temperature Range	T_J	-55 ~ +150	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 ~ +150	$^\circ\text{C}$

Electrical Characteristics (@ $T_J = 25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
Off Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS} = 0V, I_D = 250\mu A$	800	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = 800V, V_{GS} = 0V, T_J = 25^\circ\text{C}$	-	-	1	μA
		$V_{DS} = 800V, V_{GS} = 0V, T_J = 150^\circ\text{C}$	-	-	100	μA
I_{GSS}	Gate-Body Leakage Current	$V_{GS} = \pm 30V, V_{DS} = 0V$	-	-	± 100	nA
On Characteristics *3						
$R_{DS(ON)}$	Static Drain-Source On-resistance	$V_{GS} = 10V, I_D = 4A$	-	-	0.75	Ω
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\mu A$	2.5	-	4.5	V
Dynamic Characteristics						
C_{ISS}	Input Capacitance	$V_{GS} = 0V$ $V_{DS} = 50V$ $f = 1.0\text{MHz}$	-	1066	-	pF
C_{OSS}	Output Capacitance		-	52	-	
C_{RSS}	Reverse Transfer Capacitance		-	6.4	-	
Switching Characteristics						
$t_{d(ON)}$	Turn-on Delay Time	$V_{DS} = 400V$ $R_G = 25\Omega$ $I_D = 8A$	-	41	-	ns
t_r	Turn-on Rise Time		-	20	-	
$t_{d(OFF)}$	Turn-Off Delay Time		-	123	-	
t_f	Turn-Off Fall Time		-	6.4	-	
Q_G	Total Gate-Charge	$V_{DS} = 640V$ $V_{GS} = 10V$ $I_D = 8A$	-	26.5	-	nC
Q_{GS}	Gate to Source Charge		-	6	-	
Q_{GD}	Gate to Drain (Miller) Charge		-	9	-	
Source-Drain Diode Characteristics						
V_{SD}	Diode Forward Voltage	$I_S = 8A, V_{GS} = 0V$	-	-	1.2	V
I_S	Diode Continuous Forward Current	$T_C = 25^\circ\text{C}$	-	-	8	A
I_{SM}	Pulsed Source-Drain Current		-	-	24	A
t_{rr}	Reverse Recovery Time	$I_F = I_S, V_R = 400V$ $di_F/dt = 100A/\mu s$	-	280	-	ns
Q_{rr}	Reverse Recovery Charge		-	2.8	-	μC
I_{rm}	Peak Reverse Recovery Current		-	17	-	A

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature
2. $I_{AS} = 1.6A, V_{DD} = 50V, R_G = 25\Omega$, Starting $T_J = 25^\circ\text{C}$
3. Pulse Test: Pulse width $\leq 300\mu s$, Duty Cycle $\leq 1\%$

Ratings and Characteristics Curves (@ $T_J = 25^\circ\text{C}$ unless otherwise specified)

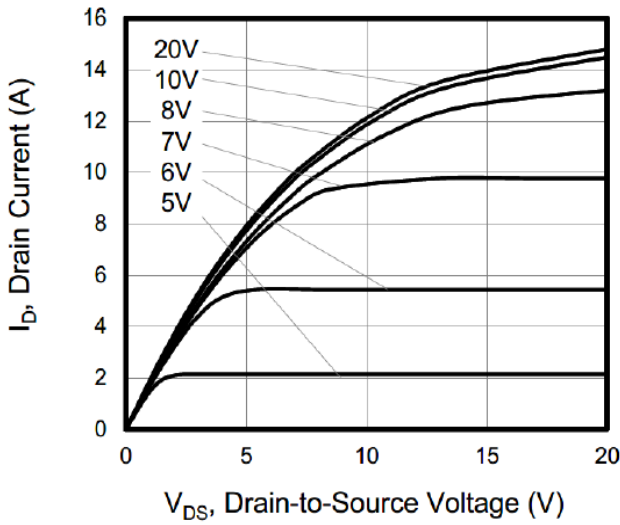


Fig 1 On-Region Characteristics

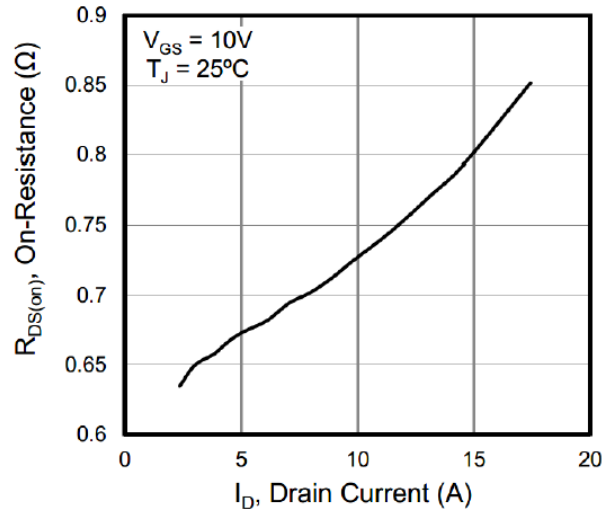


Fig 2 On-Resistance vs. Drain Current and Gate Voltage

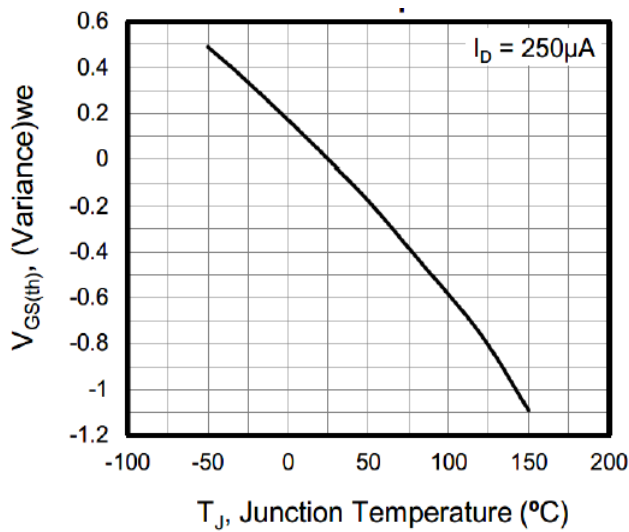


Fig 3 Threshold Voltage vs. Junction Temperature

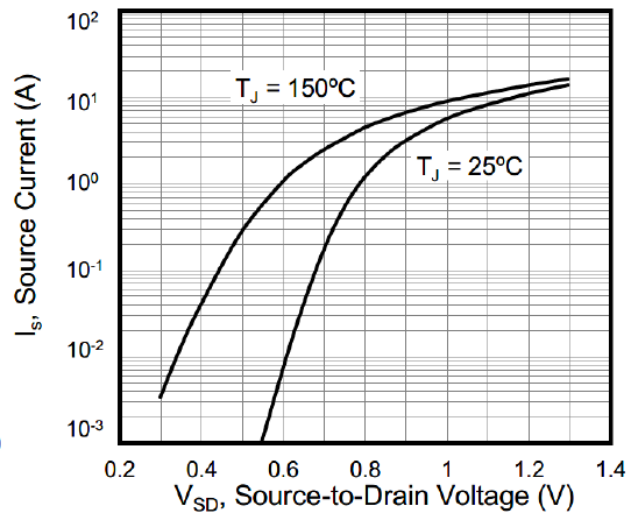


Fig 4 Body-Diode Characteristics

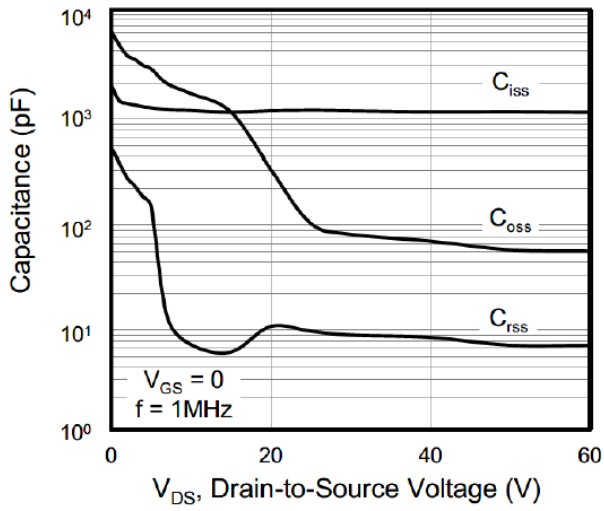


Fig 5 Capacitance Characteristics

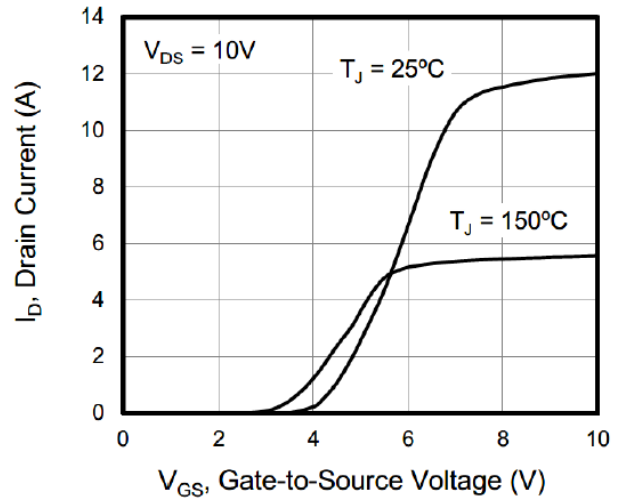


Fig 6 Transfer Characteristics

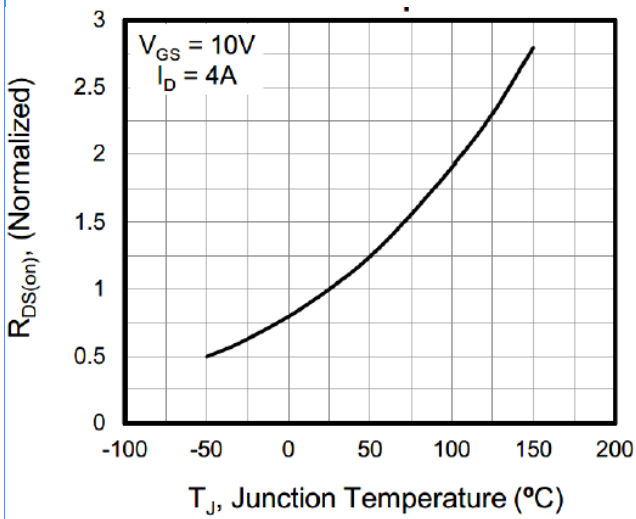


Fig 7 On-Resistance vs. Junction Temperature

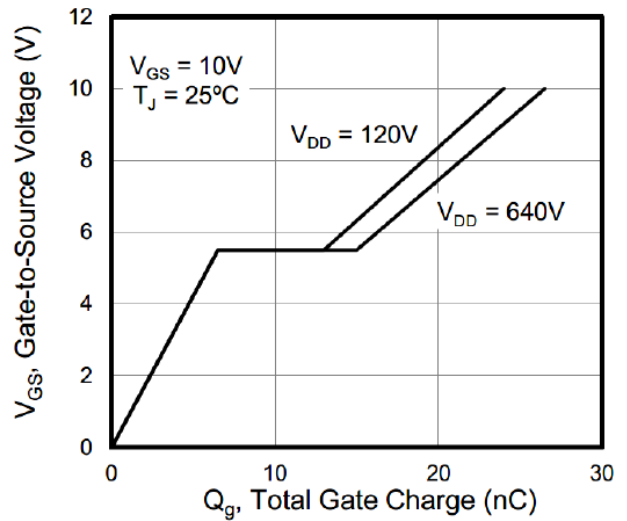
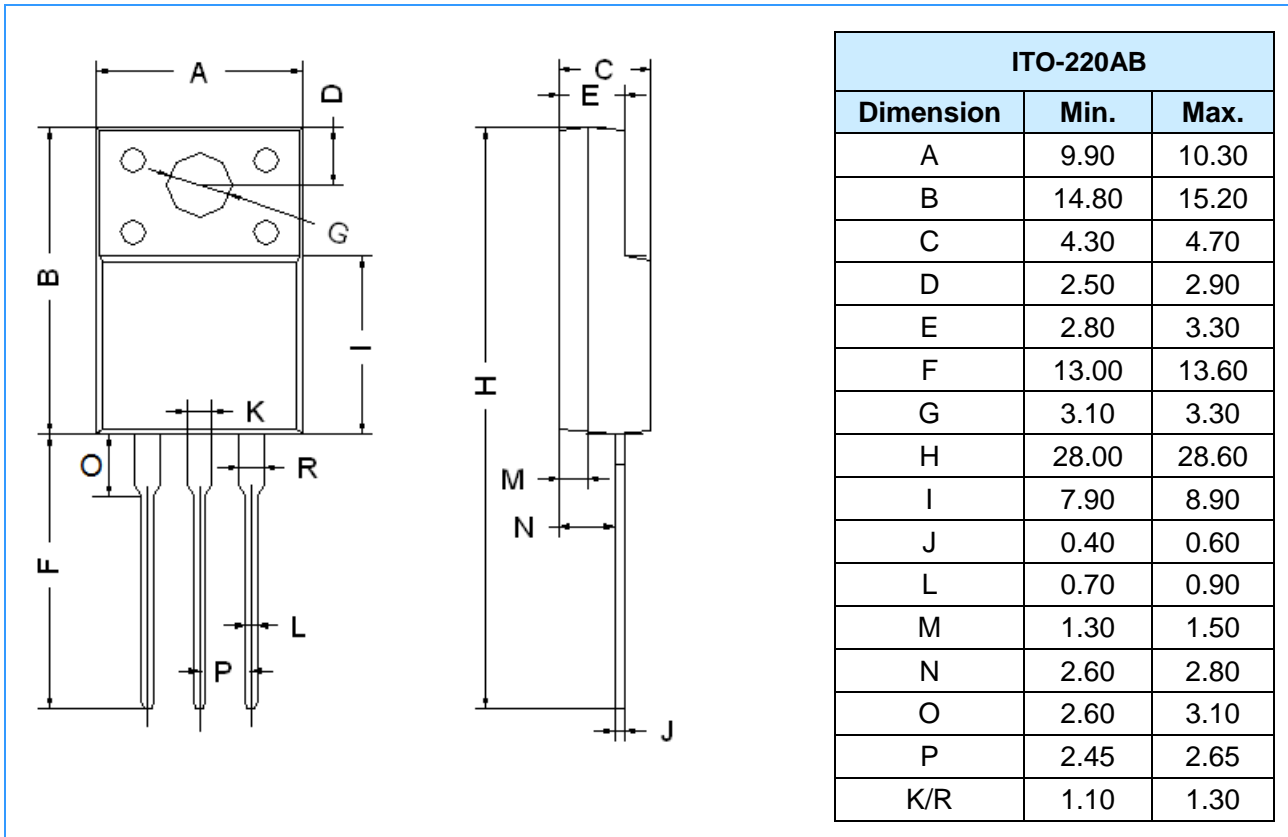


Fig 8 Gate-Charge Characteristics

Package Outline Dimensions (Unit: mm)



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