



SKJ25N80-TF

N-Channel Super Junction MOSFET

800V, 25A, 290mΩ

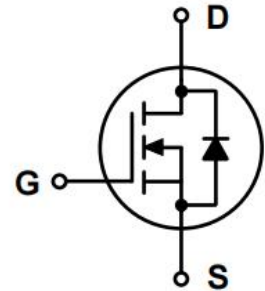
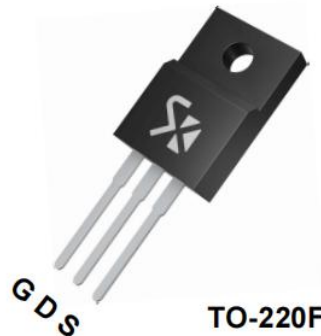
$B_{VDS}@T_{Jmax}$	I_D	$R_{DS(on)max}$	$Q_{g,typ}$
850V	25A	290mΩ	41nC

Features

- Low gate charge
- High ruggedness
- Ultra fast switching
- 100% avalanche tested
- Improved dv/dt capability

Applications

- SMPS
- Motor Drivers
- Charger/Power Supply
- UPS



Description

This Power MOSFET is produced using advanced Super junction MOSFET technology.

This advanced technology has been especially tailored to minimize on-state resistance, provide superior switching performance, and withstand high energy pulse in the avalanche and commutation mode. These devices are well suited for high efficiency switched mode power supplies.

This is Super Junction MOSFET family by utilizing charge balance technology for excellent low on-resistance and gate charge.

This technology combines the benefits of a fast switching performance with ease of usage and robustness.

Consequently, the SJ MOS family is suitable for application requiring high power density and superior efficiency.

Absolute Maximum Ratings($T_C=25^{\circ}C$, unless otherwise noted.)

Parameter	Symbol	Value	Unit
Drain-source Voltage	V_{DS}	800	V
Gate-source Voltage	V_{GS}	± 30	V
Drain Current-Continuous	I_D	25	A
Operating Temperature	T_J	-40~150	$^{\circ}C$

Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal Resistance, Junction to Ambient, Max.	$R_{\theta JA}$	62.5	$^{\circ}C/W$

Package Marking

Part Number	Top Marking	Package	Packing Method	MOQ	QTY
		TO-220F	Tube		



SKJ25N80-TF

Electrical Characteristics($T_C=25^{\circ}\text{C}$, unless otherwise noted.)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off Characteristics						
Drain-source Breakdown voltage	BV _{DSS}	V _{GS} =0V, I _D =250μA	800			V
		V _{GS} =0V, I _D =250μA, T _J =150°C	850			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =800V, V _{GS} =0V			1	μA
Gate-source leakage current	I _{GSS}	V _{GS} =±30V, V _{DS} =0V			±500	nA
On Characteristics						
Gate Threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	3.4	4	4.6	V
Static Drain to Source on resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 12.5A			290	mΩ
Dynamic Characteristics						
Internal Gate Resistance	R _G	f=1MHz		4.9		Ω
Input Capacitance	C _{iss}	V _{DS} =200V, V _{GS} =0V, f=1MHz		2008		pF
Output Capacitance	C _{oss}			46		pF
Reverse Transfer Capacitance	C _{rss}			1.3		pF
Total Gate Charge	Q _g	V _{DS} =480V, I _D =10A V _{GS} =10V		41		nC
Gate to Source Charge	Q _{gs}			15		nC
Gate to Drain “Miller” Charge	Q _{gd}			11		nC
Switching Characteristics						
Turn-On Delay Time	t _{d(on)}	V _{DS} =300V, I _D =10A R _G =25Ω, V _{GS} =10V		45		nS
Turn-On Rise Time	t _r			62		nS
Turn-Off Delay Time	t _{d(off)}			160		nS
Turn-Off Fall Time	t _f			34		nS
Source-Drain Diode Characteristics						
Continuous Diode Forward Current	I _S				21	A
Pulsed Diode Forward Current	I _{SM}				78	A
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _{SD} =8A			1.2	V
Reverse Recovery Time	t _{rr}	V _{DD} =50V, I _{SD} =10A,		270		ns
Reverse Recovery Charge	Q _{rr}	dI _F /dt=100A/μs		3.9		nC



Typical Characteristic

Figure 1. On-Region Characteristics

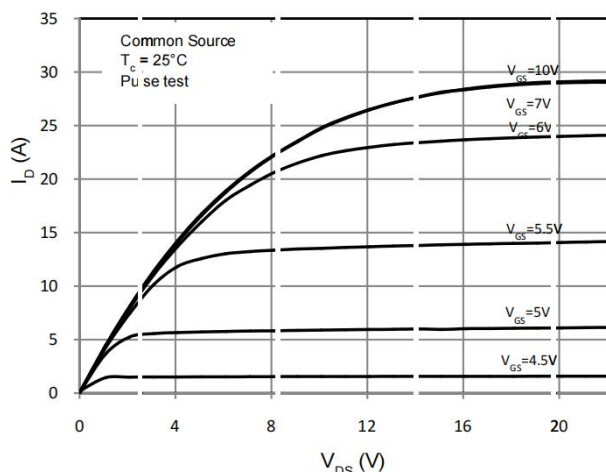


Figure 2. Transfer Characteristics

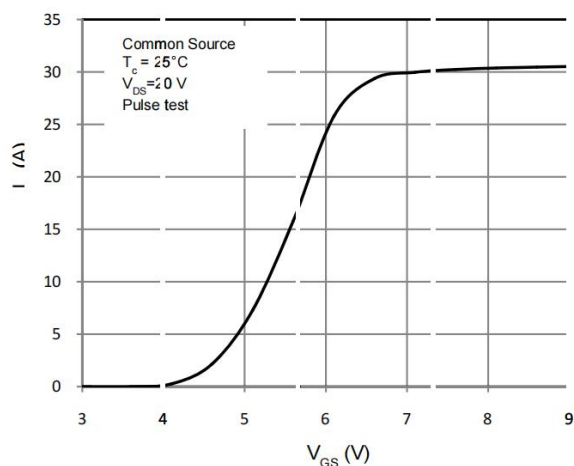


Figure 3. Static Drain-Source On Characteristics

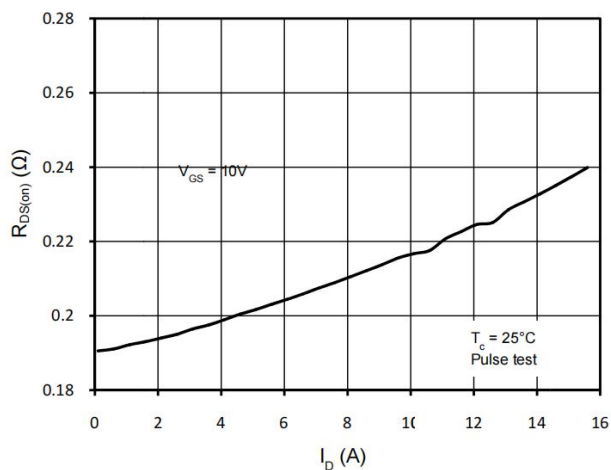


Figure 4. Body-Diode Forward Characteristics

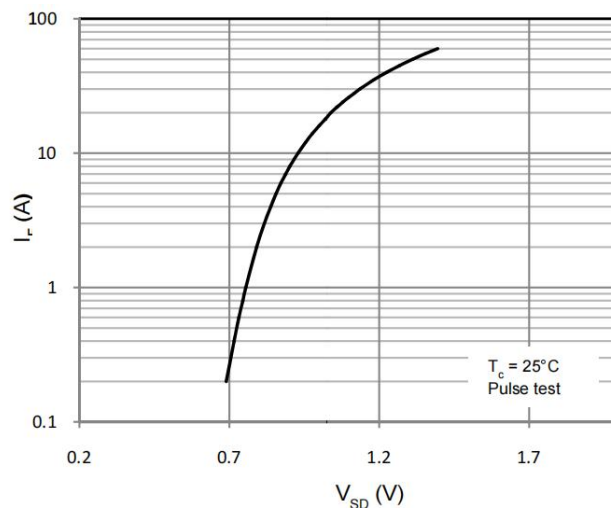


Figure 5. Normalized BVDSS vs. Temperature

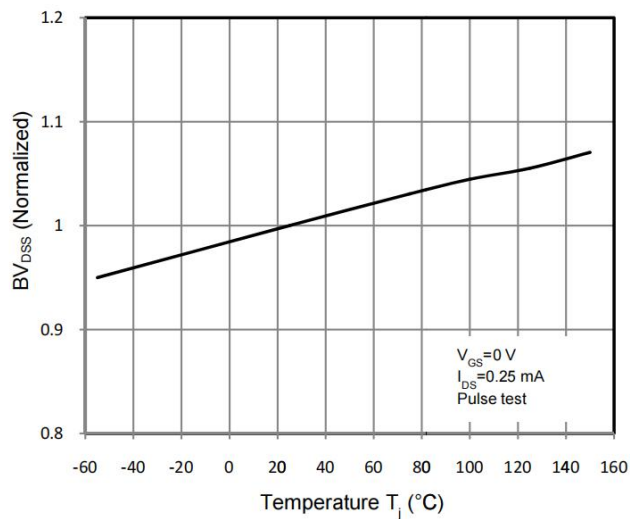
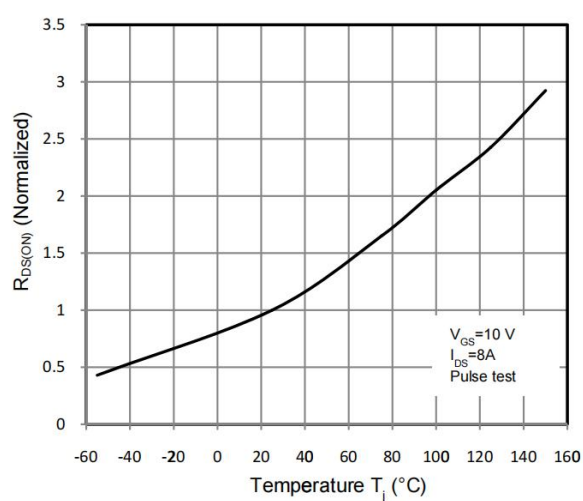


Figure 6. Normalized R_DS(ON) vs. Temperature





SKJ25N80-TF

Figure7.Threshold Voltage vs. Temperature

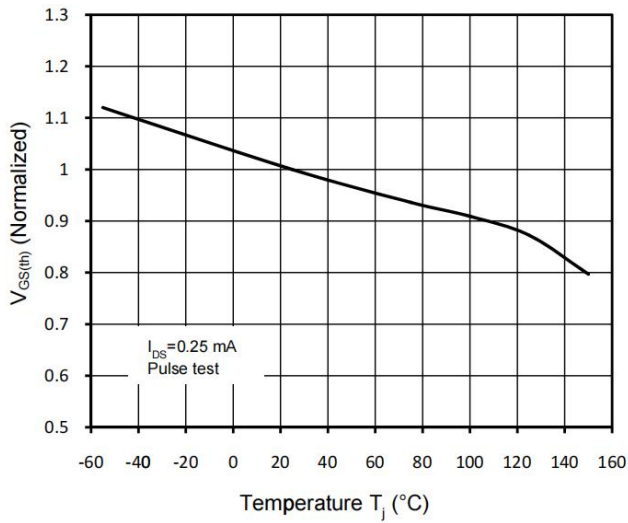


Figure8.Capacitance vs. Temperature

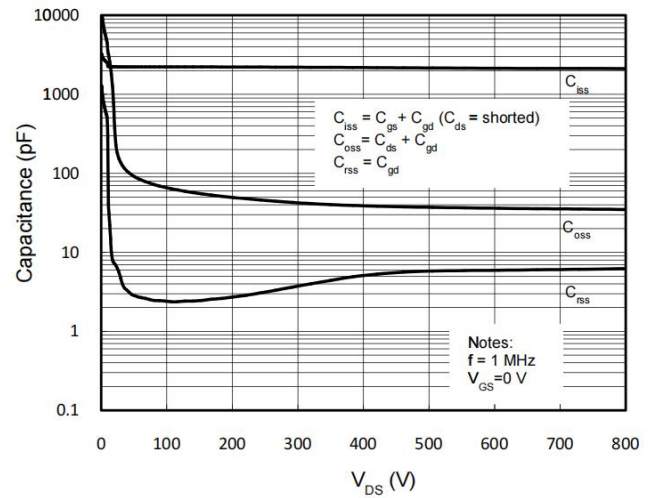


Figure9.Power Dissipation

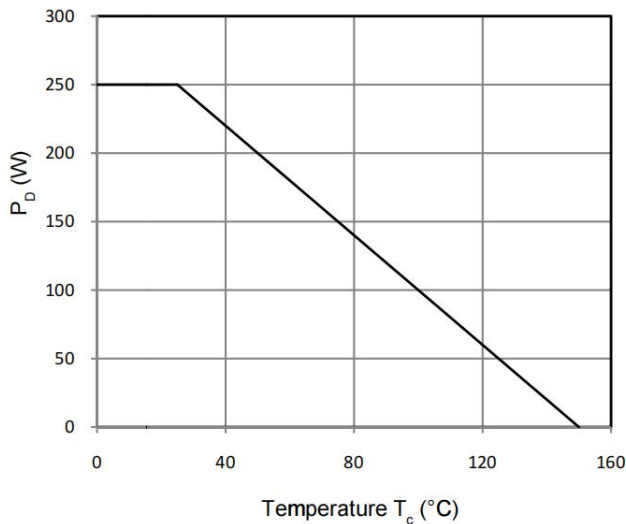


Figure10.Power Dissipation(TO-220F)

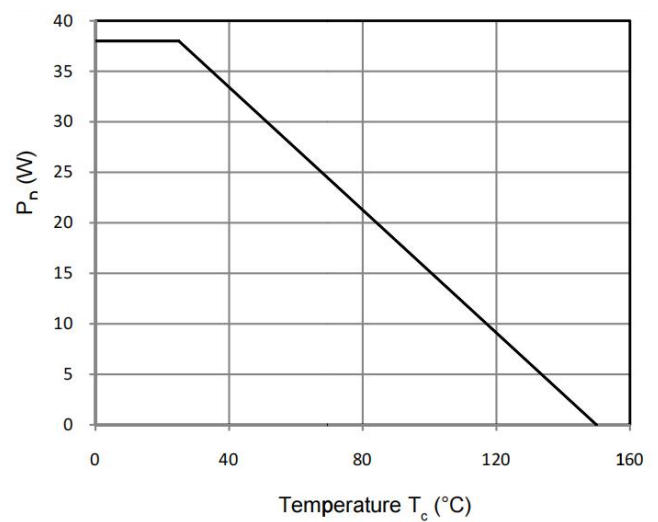


Figure11.Maximum Safe Operating Area

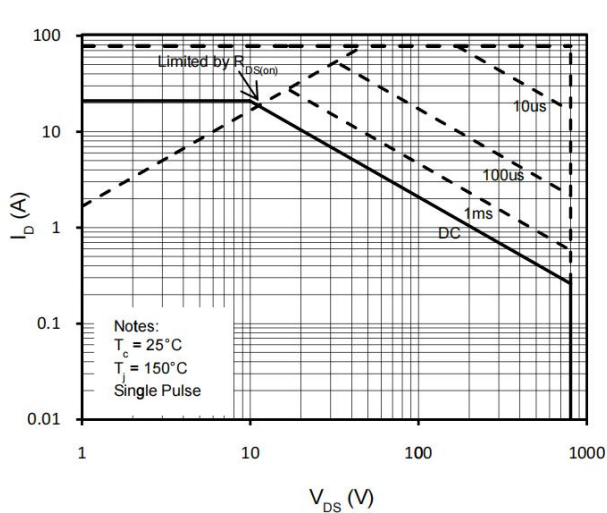
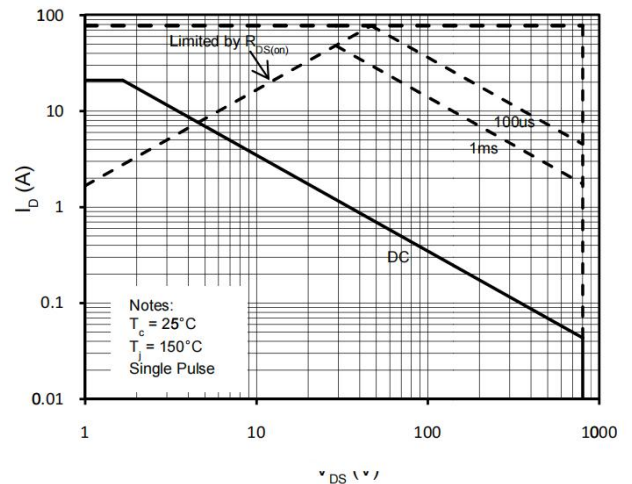


Figure12.Maximum Safe Operating Area(TO-220F)





SKJ25N80-TF

Figure13.Transient Thermal Response Curve(TO-220F)

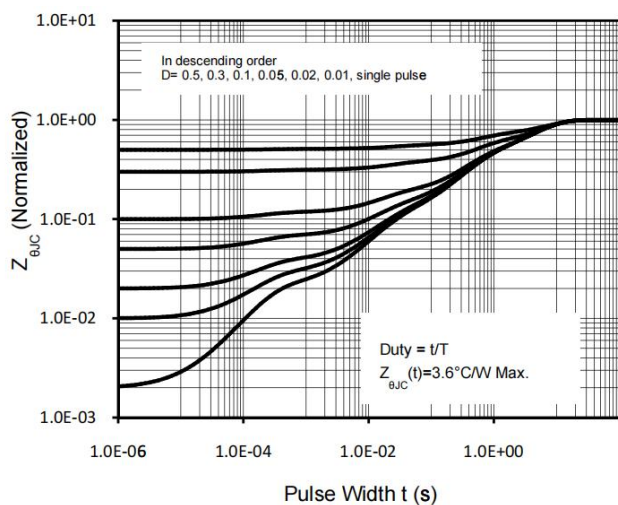


Figure14.Transient Thermal Response Curve

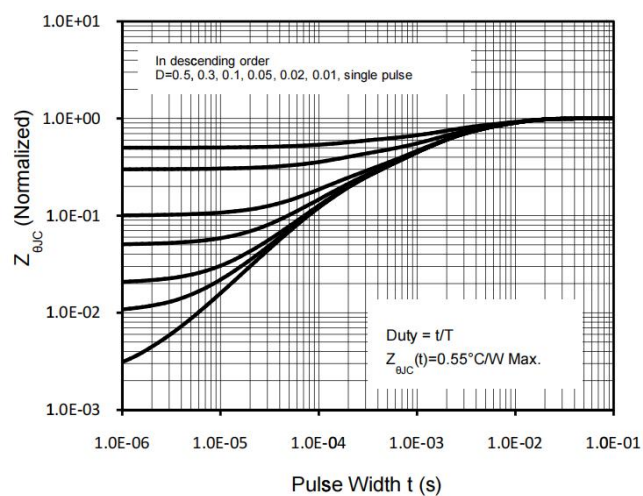
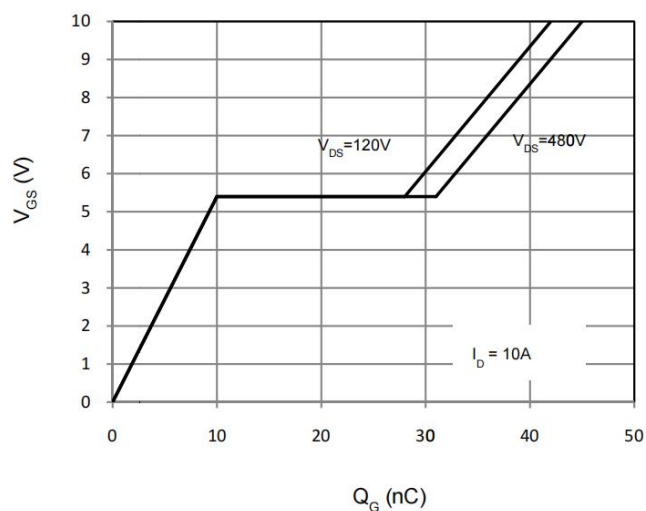
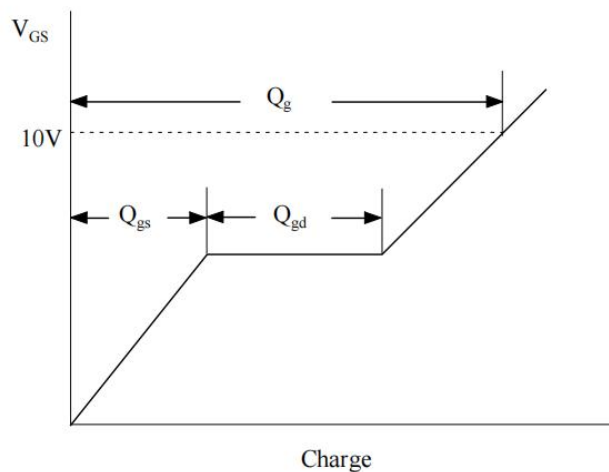


Figure15.Gate Charge Characteristics

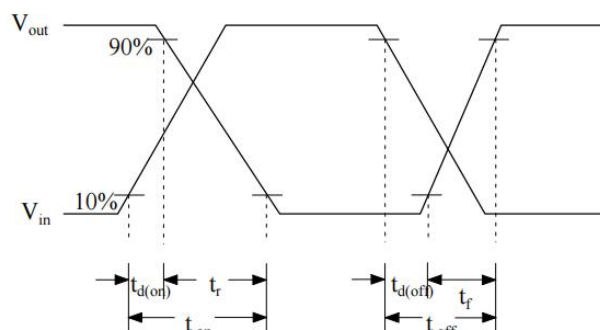




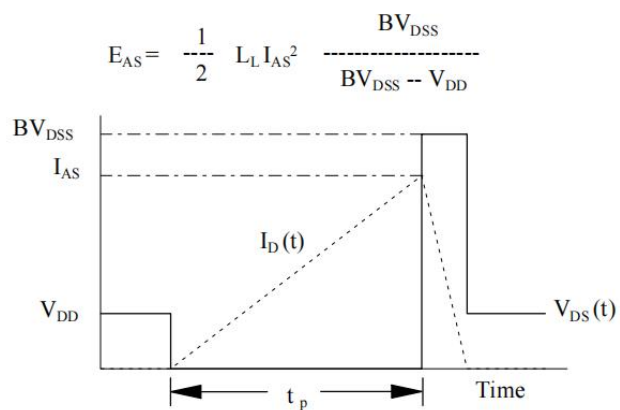
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms



Unclamped Inductive Switching Test Circuit & Waveforms





SKJ25N80-TF

Package Information

TO-220F

Dimensions in mm

