

> **Features**

- High Speed Switching
- Low On-Resistance
- No Secondary Breakdown
- Low Driving Power
- High Voltage
- VGS = ± 30V Guarantee
- Avalanche Proof

> **Applications**

- Switching Regulators
- UPS
- DC-DC converters
- General Purpose Power Amplifier

> **Maximum Ratings and Characteristics**

- Absolute Maximum Ratings (TC=25°C), unless otherwise specified

Item	Symbol	Rating	Unit
Drain-Source-Voltage	V <sub>DS</sub>	900	V
Drain-Gate-Voltage (R <sub>GS</sub> =20KΩ)	V <sub>DGR</sub>	900	V
Continous Drain Current	I <sub>D</sub>	5	A
Pulsed Drain Current	I <sub>D(puls)</sub>	20	A
Gate-Source-Voltage	V <sub>GS</sub>	±30	V
Max. Power Dissipation	P <sub>D</sub>	80	W
Operating and Storage Temperature Range	T <sub>ch</sub>	150	°C
	T <sub>stg</sub>	-55 ~ +150	°C

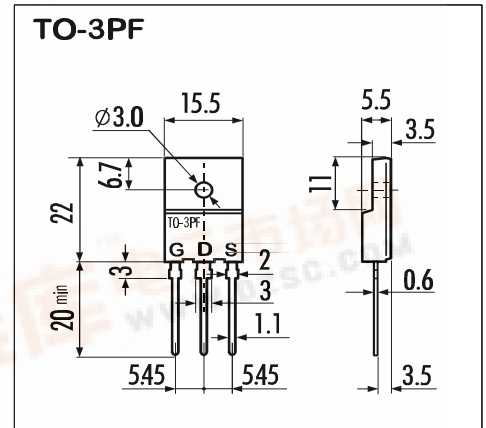
- Electrical Characteristics (TC=25°C), unless otherwise specified

Item	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown-Voltage	V <sub>(BR)DSS</sub>	I <sub>D</sub> =1mA V <sub>GS</sub> =0V	900			V
Gate Threshold Voltage	V <sub>GS(th)</sub>	I <sub>D</sub> =1mA V <sub>DS</sub> =V <sub>GS</sub>	2,5	3,0	3,5	V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =900V T <sub>ch</sub> =25°C		10	500	μA
		V <sub>GS</sub> =0V T <sub>ch</sub> =125°C		0,2	1,0	mA
Gate Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±30V V <sub>DS</sub> =0V		10	100	nA
Drain Source On-State Resistance	R <sub>DS(on)</sub>	I <sub>D</sub> =2,5A V <sub>GS</sub> =10V		2,0	2,8	Ω
Forward Transconductance	g <sub>fs</sub>	I <sub>D</sub> =2,5A V <sub>DS</sub> =25V	3,0	6,0		S
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =25V		1200	1800	pF
Output Capacitance	C <sub>oss</sub>	V <sub>GS</sub> =0V		120	180	pF
Reverse Transfer Capacitance	C <sub>rss</sub>	f=1MHz		40	60	pF
Turn-On-Time t <sub>on</sub> (t <sub>on</sub> =t <sub>d(on)</sub> +t <sub>r</sub> )	t <sub>d(on)</sub>	V <sub>CC</sub> =600V		25	40	ns
	t <sub>r</sub>	I <sub>D</sub> =5A		25	40	ns
Turn-Off-Time t <sub>off</sub> (t <sub>off</sub> =t <sub>d(off)</sub> +t <sub>f</sub> )	t <sub>d(off)</sub>	V <sub>GS</sub> =10V		85	130	ns
	t <sub>f</sub>	R <sub>GS</sub> =10 Ω		45	70	ns
Avalanche Capability	I <sub>AV</sub>	L = 100μH T <sub>ch</sub> =25°C	5,0			A
Diode Forward On-Voltage	V <sub>SD</sub>	I <sub>F</sub> =2xI <sub>DR</sub> V <sub>GS</sub> =0V T <sub>ch</sub> =25°C		0,93	1,40	V
Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> =I <sub>DR</sub> V <sub>GS</sub> =0V		400		ns
Reverse Recovery Charge	Q <sub>rr</sub>	-di <sub>F</sub> /dt=100A/μs T <sub>ch</sub> =25°C		1,5		μC

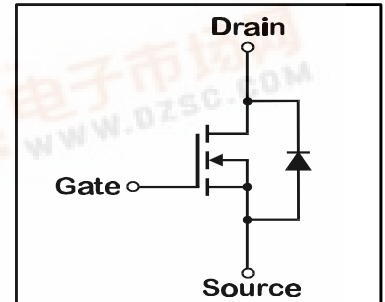
- Thermal Characteristics

Item	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Thermal Resistance	R <sub>th(ch-a)</sub>	channel to air			30,0	°C/W
	R <sub>th(ch-c)</sub>	channel to case			1,56	°C/W

> **Outline Drawing**



> **Equivalent Circuit**



N-channel MOS-FET			
900V	2,8Ω	5A	80W

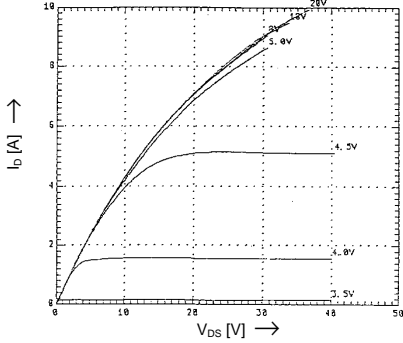
# 2SK2272-01R

## FAP-IIA Series

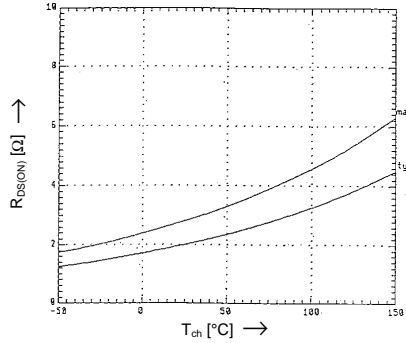


### > Characteristics

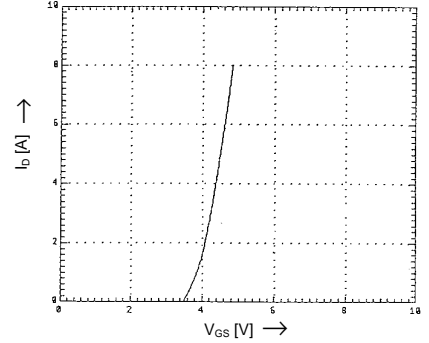
Typical Output Characteristics  
 $I_D = f(V_{DS})$ ; 80μs pulse test;  $T_C = 25^\circ\text{C}$



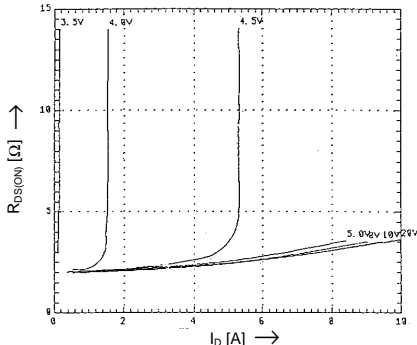
Drain-Source On-State Resistance  
 $R_{DS(on)} = f(T_{ch})$ ;  $I_D = 5A$ ;  $V_{GS} = 10V$



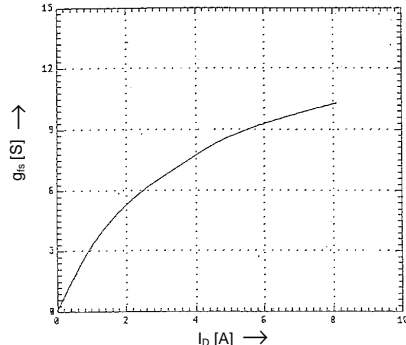
Typical Transfer Characteristics  
 $I_D = f(V_{GS})$ ; 80μs pulse test;  $V_{DS} = 25V$ ;  $T_{ch} = 25^\circ\text{C}$



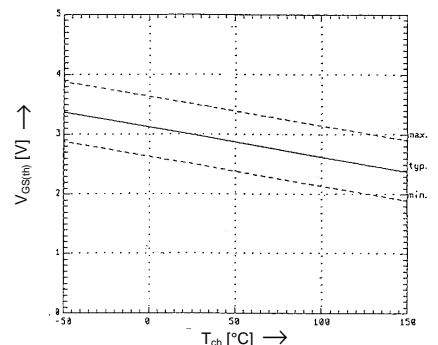
Typical Drain-Source On-State-Resistance  
 $R_{DS(on)} = f(I_D)$ ; 80μs pulse test;  $T_C = 25^\circ\text{C}$



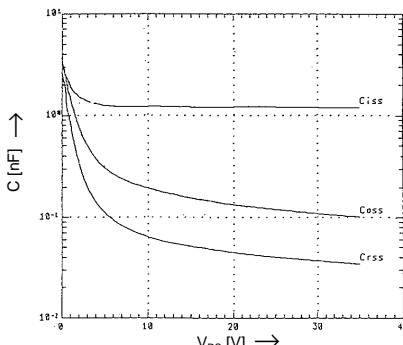
Typical Forward Transconductance  
 $g_{fs} = f(I_D)$ ; 80μs pulse test;  $V_{DS} = 25V$ ;  $T_{ch} = 25^\circ\text{C}$



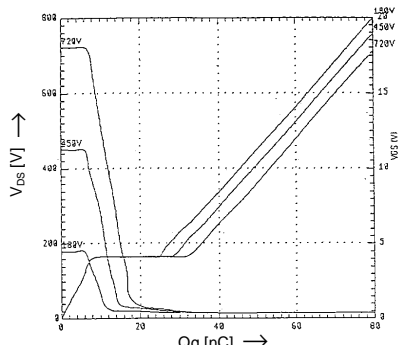
Gate Threshold Voltage vs. Tch  
 $V_{GS(th)} = f(T_{ch})$ ;  $I_D = 1mA$ ;  $V_{DS} = V_{GS}$



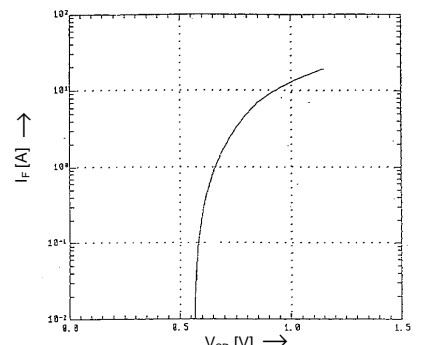
Typical Capacitances  
 $C = f(V_{DS})$ ;  $V_{GS} = 0V$ ;  $f = 1MHz$



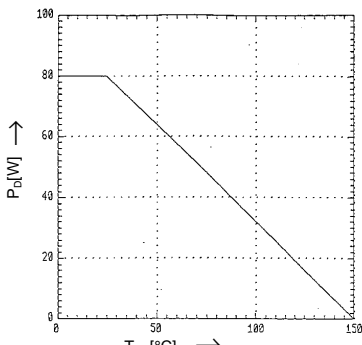
Typical Gate Charge Characteristics  
 $V_{GS} = f(Q_g)$ ;  $I_D = 5A$



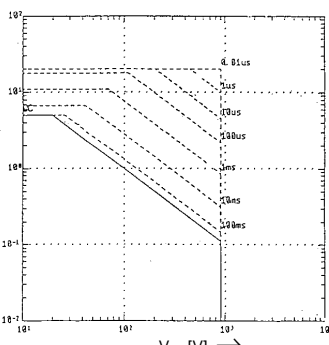
Forward Characteristics of Reverse Diode  
 $I_F = f(V_{SD})$ ; 80μs pulse test



Power Dissipation  
 $P_D = f(T_C)$



Safe Operation Area  
 $I_D = f(V_{DS})$ ;  $D = 0.01$ ;  $T_C = 25^\circ\text{C}$



$Z_{th(ch-c)}$  [K/W]

Transient Thermal impedance  
 $Z_{th(ch-c)} = f(t)$  parameter:  $D = t/T$

