

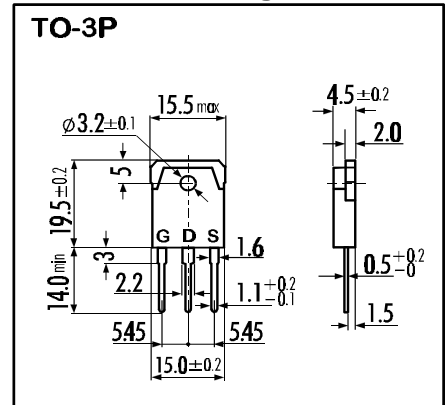
> **Features**

- 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

> **Outline Drawing**

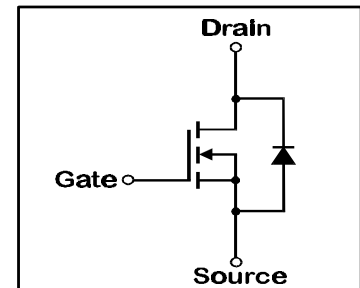


> **Maximum Ratings and Characteristics**

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

Item	Symbol	Rating	Unit
Drain-Source-Voltage	V <sub>DS</sub>	600	V
Drain-Gate-Voltage (R <sub>GS</sub> =20KΩ)	V <sub>DGR</sub>	600	V
Continous Drain Current	I <sub>D</sub>	12	A
Pulsed Drain Current	I <sub>D(puls)</sub>	48	A
Gate-Source-Voltage	V <sub>GS</sub>	±30	V
Max. Power Dissipation	P <sub>D</sub>	125	W
Operating and Storage Temperature Range	T <sub>ch</sub>	150	°C
	T <sub>stg</sub>	-55 ~ +150	°C

> **Equivalent Circuit**



- 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	600			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> =600V 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> =6A V <sub>GS</sub> =10V		0,55	0,75	Ω
Forward Transconductance	g <sub>fs</sub>	I <sub>D</sub> =6A V <sub>DS</sub> =25V	6	12		S
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =25V V <sub>GS</sub> =0V		2500	3800	pF
Output Capacitance	C <sub>oss</sub>	f=1MHz		220	330	pF
Reverse Transfer Capacitance	C <sub>rss</sub>			50	75	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> =300V		30	45	ns
		I <sub>D</sub> =6A		60	90	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		140	210	ns
		R <sub>GS</sub> =10 Ω		80	120	ns
Avalanche Capability	I <sub>AV</sub>	L = 100μH T <sub>ch</sub> =25°C	12			A
Continous Reverse Drain Current	I <sub>DR</sub>				12	A
Pulsed Reverse Drain Current	I <sub>DRM</sub>				48	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		1,05	1,58	V
Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> =I <sub>DR</sub> V <sub>GS</sub> =0V		450		ns
Reverse Recovery Charge	Q <sub>rr</sub>	-di <sub>F</sub> /dt=100A/μs T <sub>ch</sub> =25°C		3		μC

- Thermal Characteristics

Item	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Thermal Resistance	R <sub>th(ch-a)</sub>	channel to air			35	°C/W
	R <sub>th(ch-c)</sub>	channel to case			1,25	°C/W

N-channel MOS-FET			
600V	0,75Ω	12A	125W

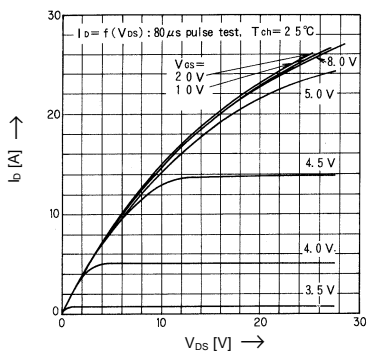
# 2SK1940-01

## FAP-IIA Series

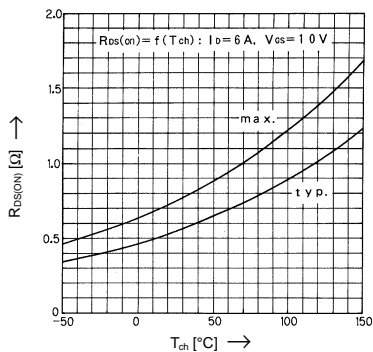


### > Characteristics

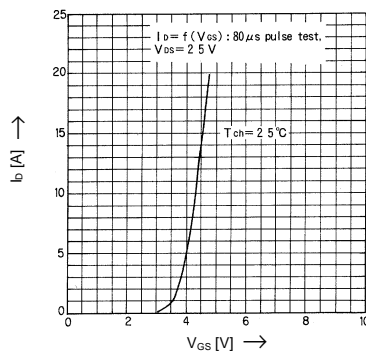
Typical Output Characteristics



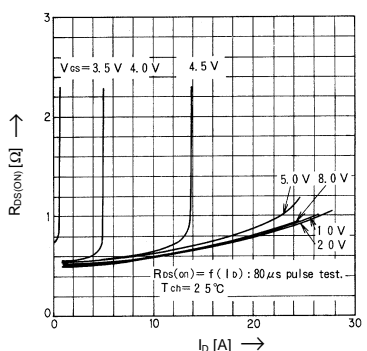
Drain-Source-On-State Resistance vs. Tch



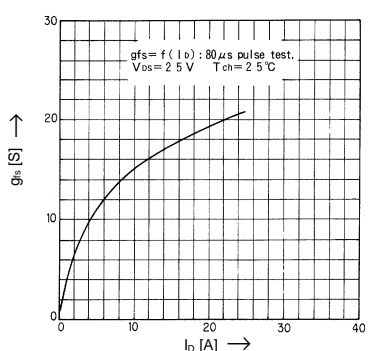
Typical Transfer Characteristics



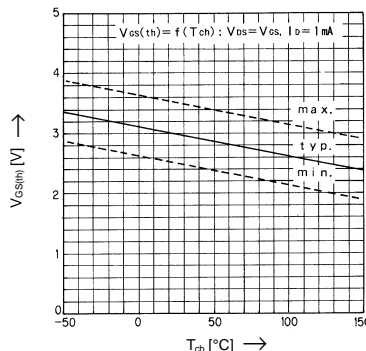
Typical Drain-Source-On-State-Resistance vs. Id



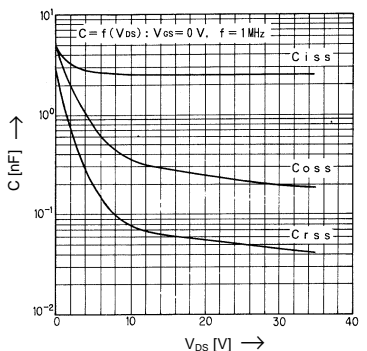
Typical Forward Transconductance vs. Id



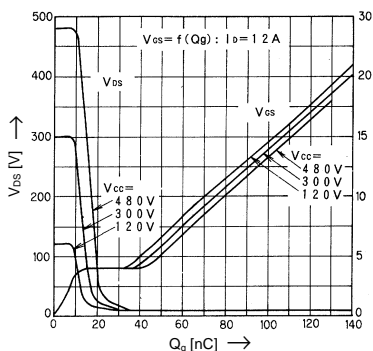
Gate Threshold Voltage vs. Tch



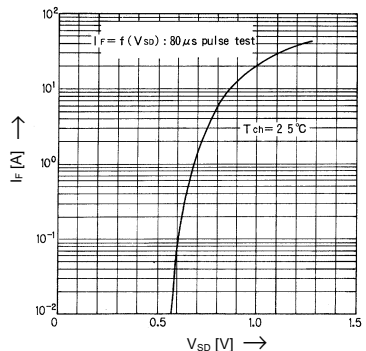
Typical Capacitance vs. Vds



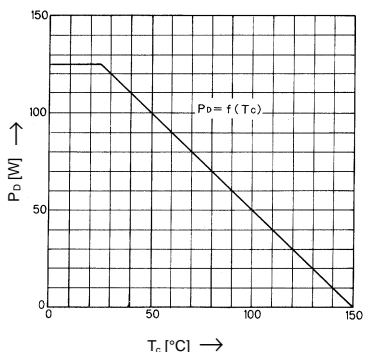
Typical Input Charge



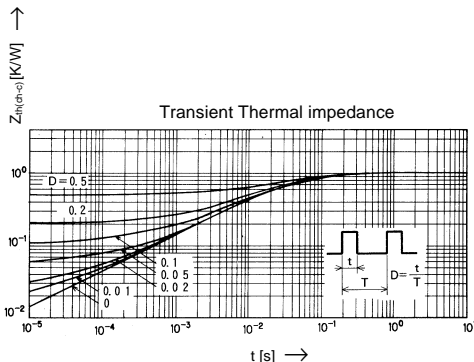
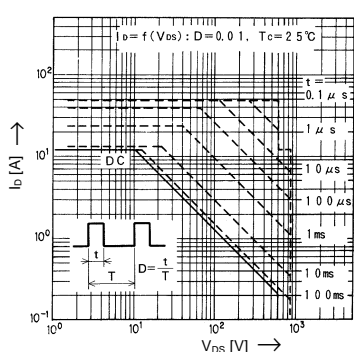
Forward Characteristics of Reverse Diode



Allowable Power Dissipation vs. Tc



Safe operation area



This specification is subject to change without notice!