

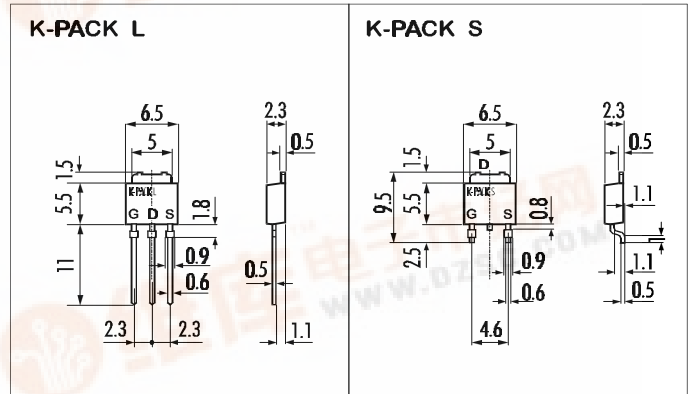
> Features

- High Current
- Low On-Resistance
- No Secondary Breakdown
- Low Driving Power
- High Forward Transconductance
- Avalanche Proof

> Applications

- Motor Control
- General Purpose Power Amplifier
- DC-DC converters

> Outline Drawing

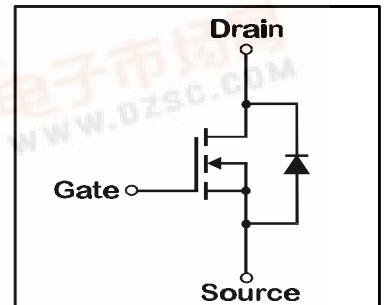


> Maximum Ratings and Characteristics

- Absolute Maximum Ratings (T<sub>C</sub>=25°C), unless otherwise specified

Item	Symbol	Rating	Unit
Drain-Source-Voltage	V <sub>DS</sub>	60	V
Drain-Gate-Voltage(R <sub>GS</sub> =20KΩ)	V <sub>DGR</sub>	60	V
Continous Drain Current	I <sub>D</sub>	10	A
Pulsed Drain Current	I <sub>D(puls)</sub>	40	A
Gate-Source-Voltage	V <sub>GS</sub>	±20	V
Max. Power Dissipation	P <sub>D</sub>	20	W
Operating and Storage Temperature Range	T <sub>ch</sub>	150	°C
	T <sub>stg</sub>	-55 ~ +150	°C

> Equivalent Circuit



- Electrical Characteristics (T<sub>C</sub>=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	60			V
Gate Threshold Voltage	V <sub>GS(th)</sub>	I <sub>D</sub> =1mA V <sub>DS</sub> =V <sub>GS</sub>	1,0	1,5	2,5	V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =60V 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> =±20V V <sub>DS</sub> =0V		10	100	nA
Drain Source On-State Resistance	R <sub>DS(on)</sub>	I <sub>D</sub> =5A V <sub>GS</sub> =4V		0,11	0,16	Ω
		I <sub>D</sub> =5A V <sub>GS</sub> =10V		0,07	0,1	Ω
Forward Transconductance	g <sub>fs</sub>	I <sub>D</sub> =5A V <sub>DS</sub> =25V	4	8		S
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =25V		500	750	pF
Output Capacitance	C <sub>oss</sub>	V <sub>GS</sub> =0V		200	300	pF
Reverse Transfer Capacitance	C <sub>rss</sub>	f=1MHz		80	120	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> =30V		10	15	ns
		I <sub>D</sub> =5A		20	30	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		100	150	ns
		R <sub>GS</sub> =25Ω		50	75	ns
Avalanche Capability	I <sub>AV</sub>	L=100μH T <sub>ch</sub> =25°C	10			A
Continous Reverse Drain Current	I <sub>DR</sub>				10	A
Pulsed Reverse Drain Current	I <sub>DRM</sub>				40	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		1,2		V
Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> =I <sub>DR</sub> V <sub>GS</sub> =0V		100		ns
Reverse Recovery Charge	Q <sub>rr</sub>	-di <sub>F</sub> /dt=100A/μs T <sub>ch</sub> =25°C		0,15		μC

- Thermal Characteristics

Item	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Thermal Resistance	R <sub>th(ch-a)</sub>	channel to air				°C/W
	R <sub>th(ch-c)</sub>	channel to case			6,25	°C/W



N-channel MOS-FET			
60V	0,1Ω	10A	20W

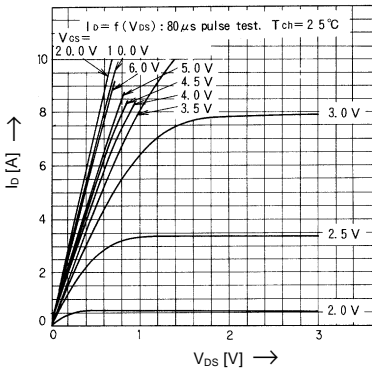
# 2SK2018-01L,S

## FAP-III Series

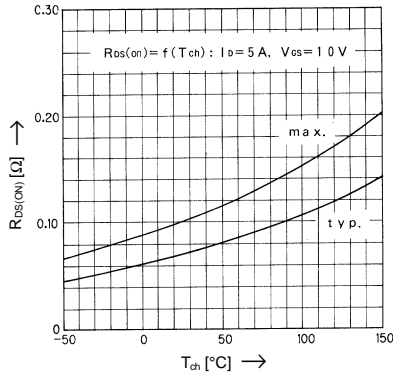


### > Characteristics

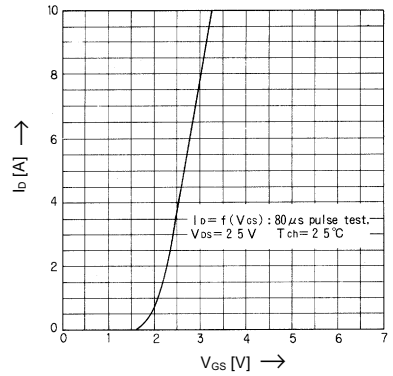
Typical Output Characteristics



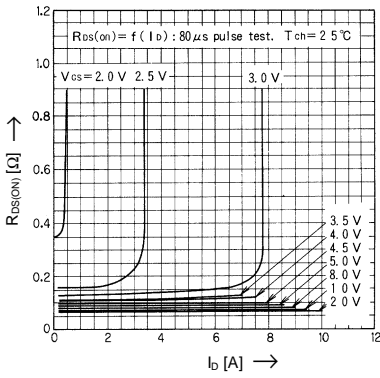
Drain-Source-On-State Resistance vs.  $T_{ch}$



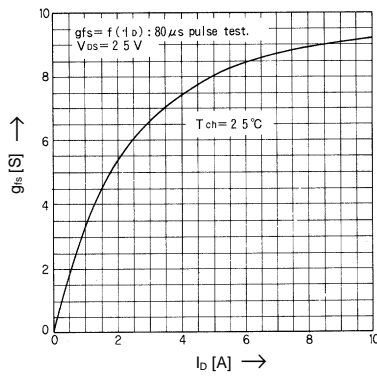
Typical Transfer Characteristics



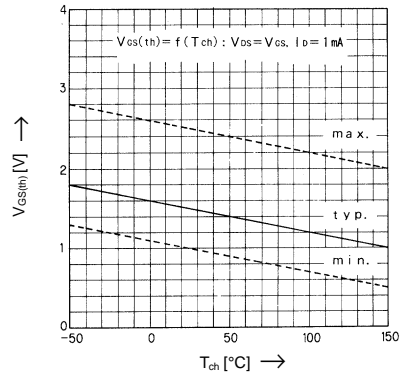
Typical Drain-Source-On-State-Resistance vs.  $I_D$



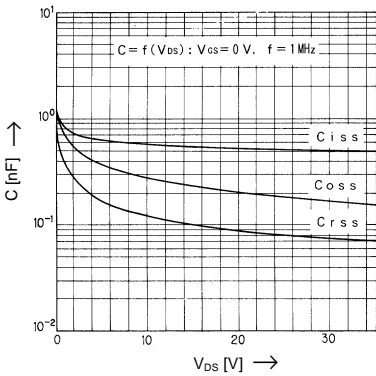
Typical Forward Transconductance vs.  $I_D$



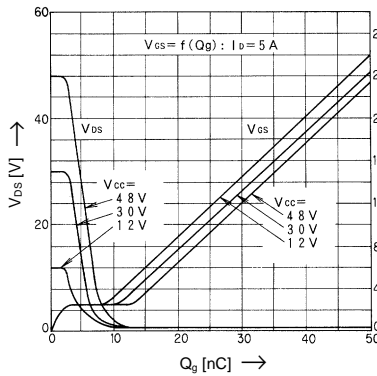
Gate Threshold Voltage vs.  $T_{ch}$



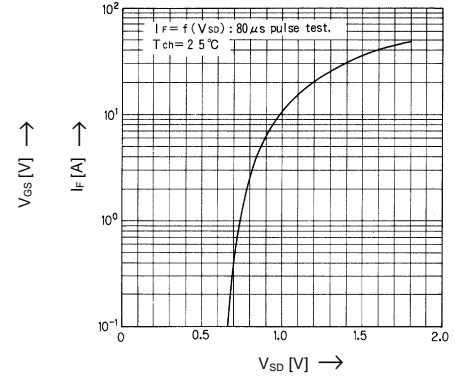
Typical Capacitance vs.  $V_{DS}$



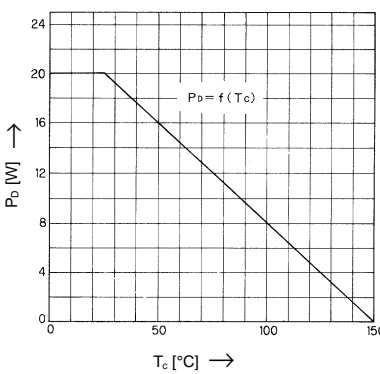
Typical Input Charge



Forward Characteristics of Reverse Diode



Allowable Power Dissipation vs.  $T_c$



Safe operation area

