

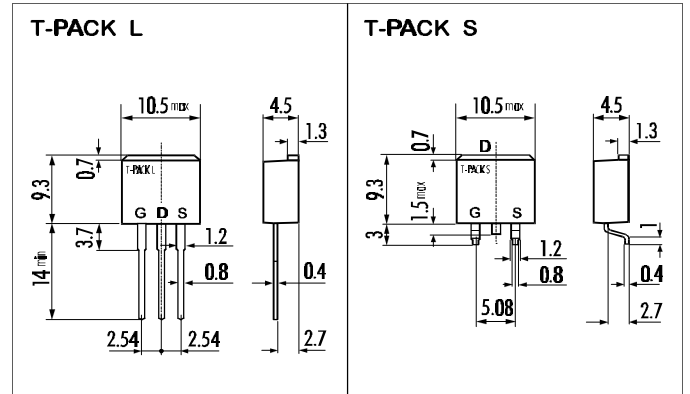
> Features

- High Speed Switching
- Low On-Resistance
- No Secondary Breakdown
- Low Driving Power
- High Voltage

> Applications

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

> Outline Drawing

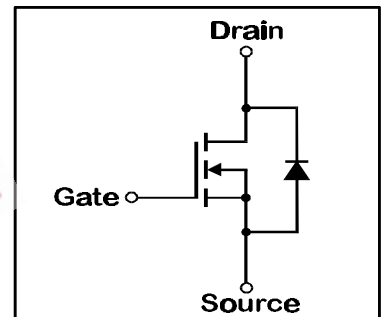


> Maximum Ratings and Characteristics

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

Item	Symbol	Rating	Unit
Drain-Source-Voltage	V <sub>DS</sub>	800	V
Continuous Drain Current	I <sub>D</sub>	3	A
Pulsed Drain Current	I <sub>D(puls)</sub>	12	A
Continuous Reverse Drain Current	I <sub>DR</sub>	3	A
Gate-Source-Voltage	V <sub>GS</sub>	±20	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

> 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	800			V
Gate Threshold Voltage	V <sub>GS(th)</sub>	I <sub>D</sub> =10mA V <sub>DS</sub> =V <sub>GS</sub>	2,1	3,0	4,0	V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =800V T <sub>ch</sub> =25°C		0,01	0,5	mA
		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> =1,5A V <sub>GS</sub> =10V		3	4	Ω
Forward Transconductance	g <sub>fs</sub>	I <sub>D</sub> =1,5A V <sub>DS</sub> =25V	2	4		S
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =25V		900	1400	pF
Output Capacitance	C <sub>oss</sub>	V <sub>GS</sub> =0V		90	140	pF
Reverse Transfer Capacitance	C <sub>rss</sub>	f=1MHz		35	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> =30V		20	30	ns
		I <sub>D</sub> =2,1A		40	60	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		150	250	ns
		R <sub>GS</sub> =50Ω		60	90	ns
Diode Forward On-Voltage	V <sub>SD</sub>	I <sub>F</sub> =2I <sub>DR</sub> V <sub>GS</sub> =0V T <sub>ch</sub> =25°C		1	1,35	V
Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> =I <sub>DR</sub> V <sub>GS</sub> =0V -dI <sub>F</sub> /dt=100A/μs T <sub>ch</sub> =25°C		400		ns

- Thermal Characteristics

Item	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Thermal Resistance	R <sub>th(ch-a)</sub>	channel to air			125	°C/W
	R <sub>th(ch-c)</sub>	channel to case			1,56	°C/W

N-channel MOS-FET			
800V	4Ω	3A	80W

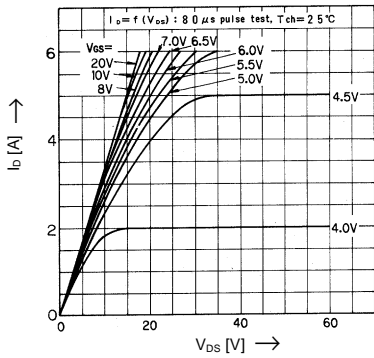
# 2SK1663-L,S

## F-I Series

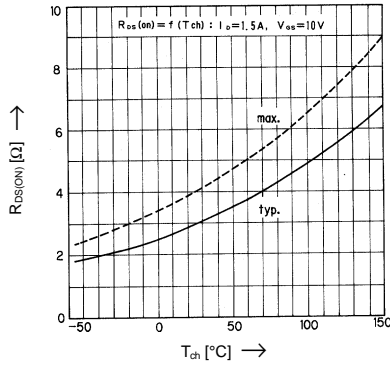


### > Characteristics

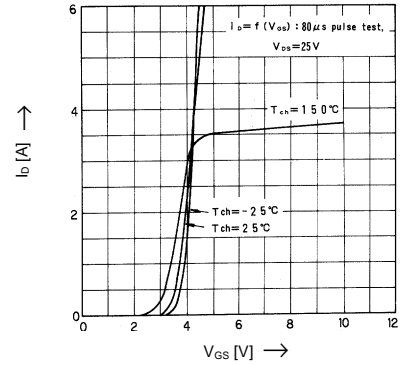
Typical Output Characteristics



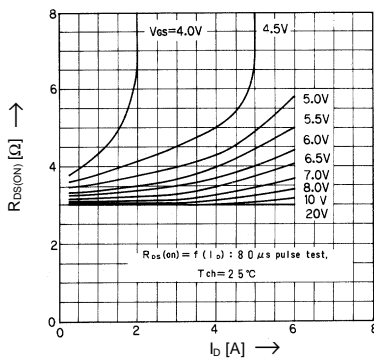
Drain-Source-On-State Resistance vs.  $T_{ch}$



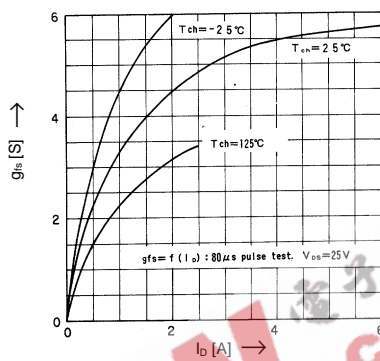
Typical Transfer Characteristics



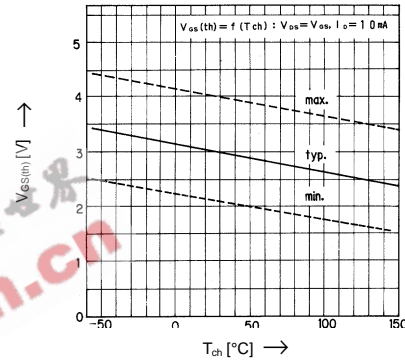
Typical Drain-Source-On-State-Resistance vs.  $I_D$



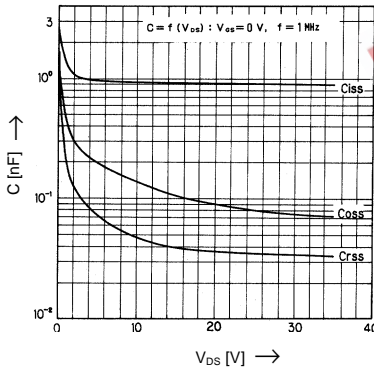
Typical Forward Transconductance vs.  $I_D$



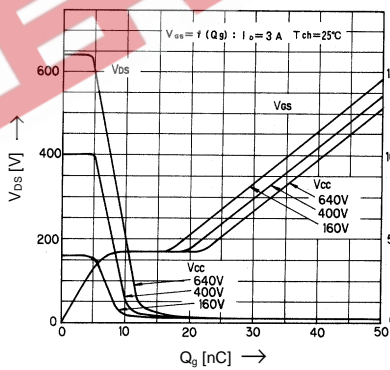
Gate Threshold Voltage vs.  $T_{ch}$



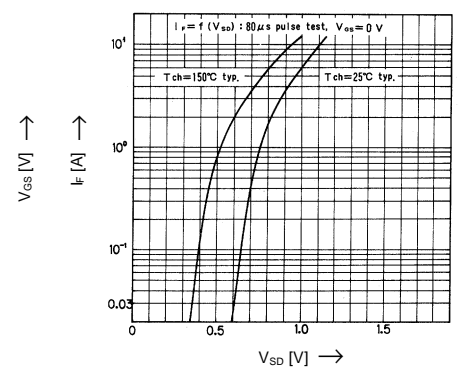
Typical Capacitance vs.  $V_{DS}$



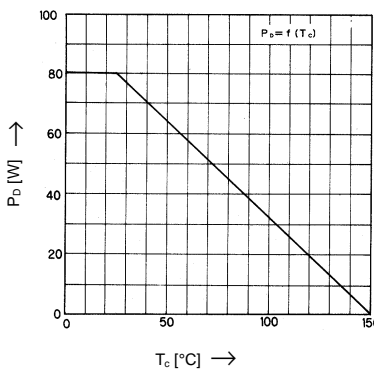
Typical Input Charge



Forward Characteristics of Reverse Diode



Allowable Power Dissipation vs.  $T_C$



Safe operation area

