

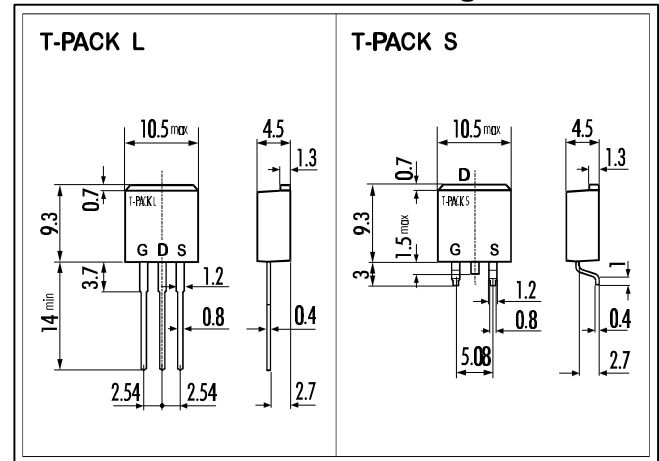
### > Features

- High Speed Switching
- Low On-Resistance
- No Secondary Breakdown
- Low Driving Power
- High Voltage
- $V_{GS} = \pm 30V$  Guarantee
- Repetitive Avalanche Rated

### > Applications

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

### > Outline Drawing



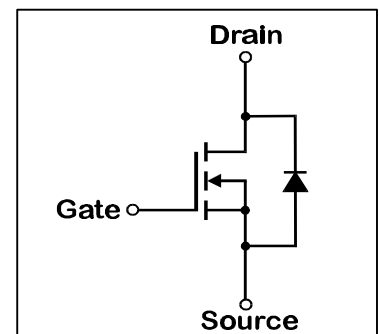
### > Maximum Ratings and Characteristics

- Absolute Maximum Ratings ( $T_C=25^\circ C$ ), unless otherwise specified

Item	Symbol	Rating	Unit
Drain-Source-Voltage	$V_{DS}$	30	V
Continuous Drain Current	$I_D$	±50	A
Pulsed Drain Current	$I_{D(puls)}$	±200	A
Gate-Source-Voltage	$V_{GS}$	±16	V
Max. Avalanche Energy	$E_{AV}$	520	mJ
Max. Power Dissipation	$P_D$	60	W
Operating and Storage Temperature Range	$T_{ch}$	150	$^\circ C$
	$T_{stg}$	-55 ~ +150	$^\circ C$

$L=0.277mH, V_{CC}=12V$

### > Equivalent Circuit



- Electrical Characteristics ( $T_C=25^\circ C$ ), unless otherwise specified

Item	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown-Voltage	$BV_{DSS}$	$I_D=1mA$ $V_{GS}=0V$	30			V
Gate Threshold Voltage	$V_{GS(th)}$	$I_D=1mA$ $V_{DS}=V_{GS}$	1,0	1,5	2,0	V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=30V$ $T_{ch}=25^\circ C$		10	500	$\mu A$
		$V_{GS}=0V$ $T_{ch}=125^\circ C$		0,2	1,0	mA
Gate Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 16V$ $V_{DS}=0V$		10	100	nA
Drain Source On-State Resistance	$R_{DS(on)}$	$I_D=25A$ $V_{GS}=4V$		0,012	0,017	$\Omega$
		$I_D=25A$ $V_{GS}=10V$		0,0075	0,01	$\Omega$
Forward Transconductance	$g_{fs}$	$I_D=25A$ $V_{DS}=25V$	22	45		S
Input Capacitance	$C_{iss}$	$V_{DS}=25V$ $V_{GS}=0V$		2750	4130	pF
Output Capacitance	$C_{oss}$	$f=1MHz$		1300	1950	pF
Reverse Transfer Capacitance	$C_{rss}$			600	900	pF
Turn-On-Time $t_{on}$ ( $t_{on}=t_{d(on)}+t_r$ )	$t_{d(on)}$	$V_{CC}=15V$		13	20	ns
	$t_r$	$I_D=50A$		180	270	ns
Turn-Off-Time $t_{off}$ ( $t_{off}=t_{d(off)}+t_f$ )	$t_{d(off)}$	$V_{GS}=10V$		55	83	ns
	$t_f$	$R_{GS}=10\Omega$		150	230	ns
Avalanche Capability	$I_{AV}$	$L=100\mu H$ $T_{ch}=25^\circ C$	50			A
Diode Forward On-Voltage	$V_{SD}$	$I_F=2xI_{DR}$ $V_{GS}=0V$ $T_{ch}=25^\circ C$		1,14	1,71	V
Reverse Recovery Time	$t_{rr}$	$I_F=I_{DR}$ $V_{GS}=0V$		85	130	ns
Reverse Recovery Charge	$Q_{rr}$	$-dI_F/dt=100A/\mu s$ $T_{ch}=25^\circ C$		0,17		$\mu C$

- Thermal Characteristics

Item	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Thermal Resistance	$R_{th(ch-c)}$	channel to case			2,08	$^\circ C/W$
	$R_{th(ch-a)}$	channel to air			125,0	$^\circ C/W$

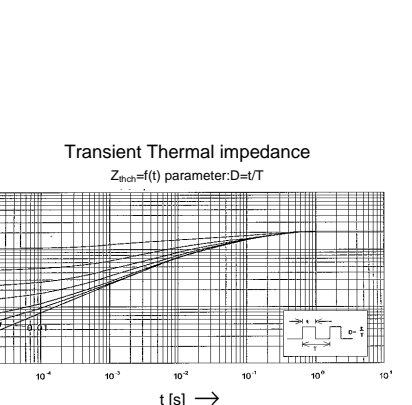
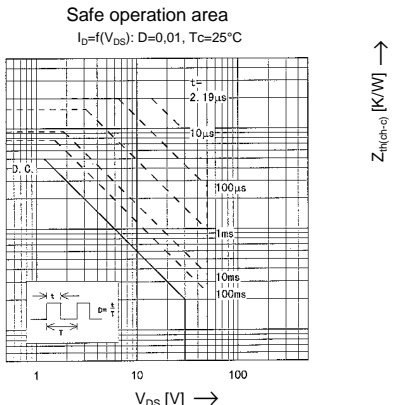
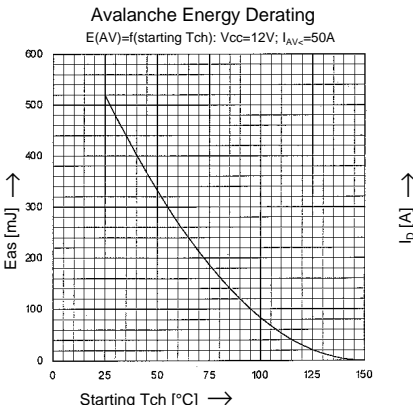
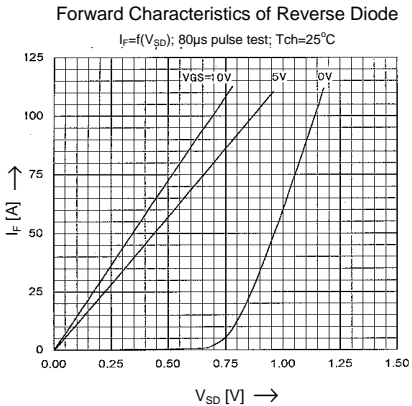
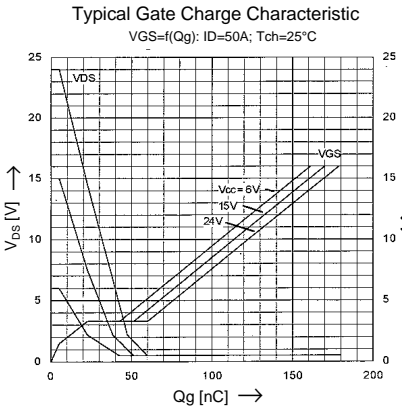
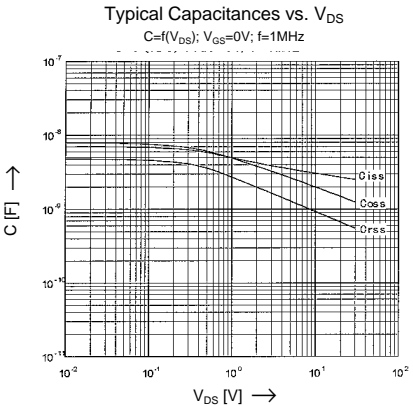
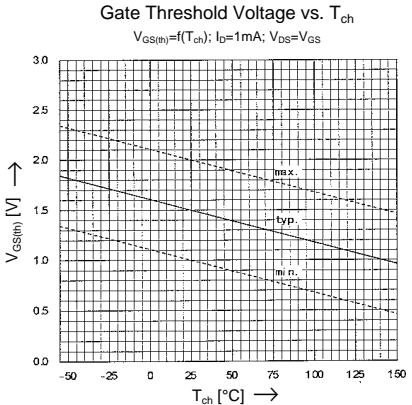
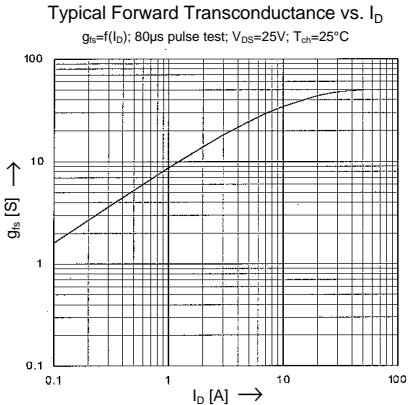
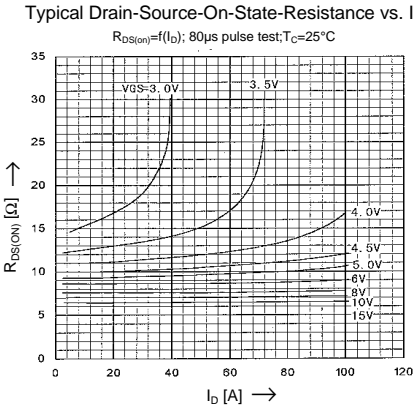
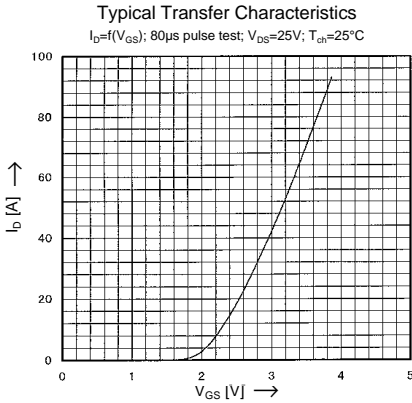
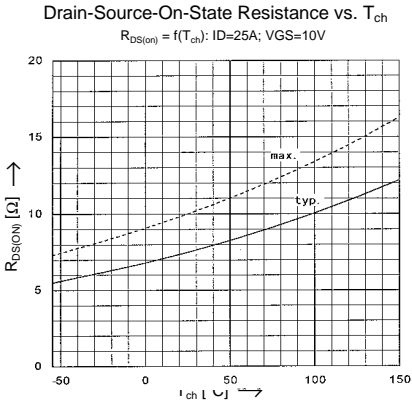
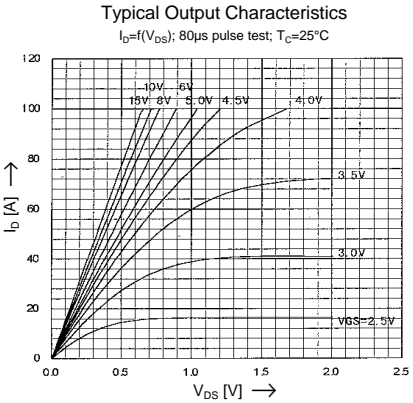
N-channel MOS-FET			
30V	0,017Ω	±50A	60W

2SK2688-01

FAP-IIS Series

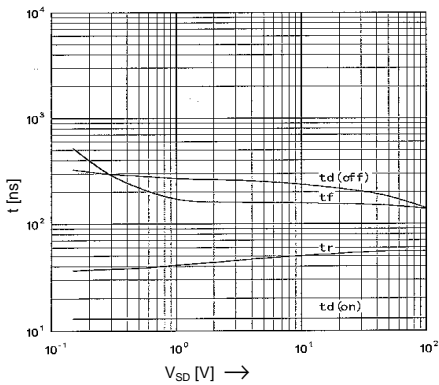


> Characteristics

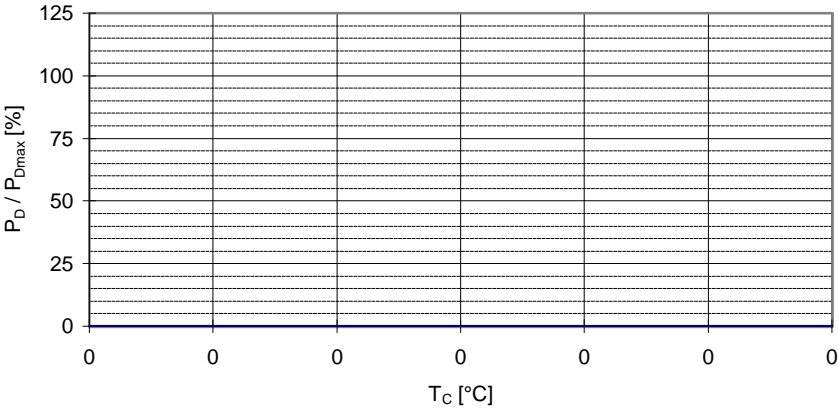


> Characteristics

Typical Switching Characteristics



Power Dissipation  
 $P_D=f(T_C)$



Maximum Avalanche Current vs. starting  $T_{ch}$   
 $I_{AV}=f(\text{starting } T_{ch})$

