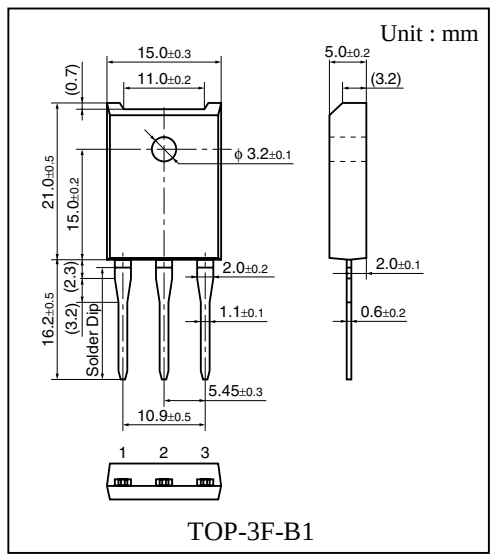
Silicon MOSFET

2SK3559

N-channel enhancement mode MOSFET

High speed switching



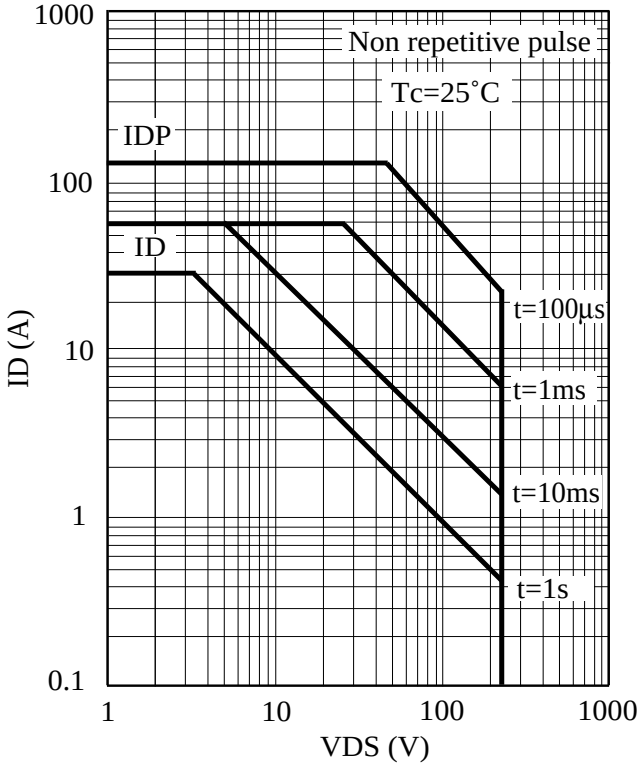
■ Absolute Maximum Ratings

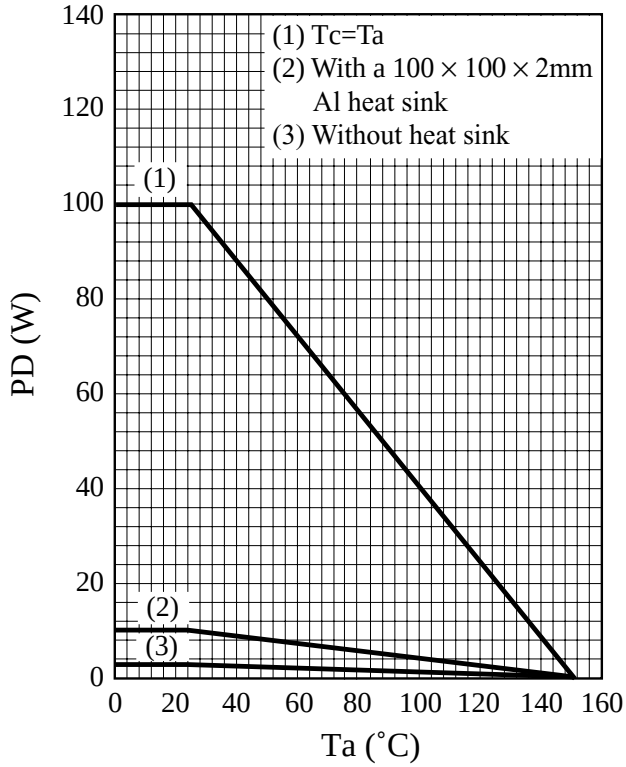
Parameter		Symbol	Rating	Unit
Drain-Source breakdown voltage		V_{DSS}	230	V
Gate-Source voltage		V_{GSS}	±30	V
Drain current	DC	I_D	30	A
	Pulse	I_{DP}	120	A
Allowable power dissipation	Tc = 25 °C *1	P_D	100	W
	Ta = 25 °C *2	P_D	3	W
Junction temperature		T_j	150	°C
Storage temperature		T_{stg}	-55 to +150	°C

*1 : Tc = 25 °C
*2 : Ta = 25 °C (Without heat sink)

■ Electrical Characteristics (Tc = 25 ± 3 °C)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Drain Cutoff Current	I_{DSS}	V_{DS} = 184V, V_{GS} = 0	–	–	100	μA
Gate-source Leakage Current	I_{GSS}	V_{GS} = ± 30 V, V_{DS} = 0	–	–	± 1	μA
Drain-source Breakdown Voltage	V_{DSS}	I_D = 1 mA, V_{GS} = 0	230	–	–	V
Gate Threshold Voltage	V_{th}	V_{DS} = 25 V, I_D = 1 mA	2	–	4	V
Drain-source on Resistance	$R_{DS\ (on)}$	V_{GS} = 10 V, I_D = 15 A	–	55	74	mΩ
Forward Transfer Admittance	$\|Y_{fs}\|$	V_{DS} = 25 V, I_D = 15 A	8	16	–	S
Diode Forward Voltage	V_{DSF}	I_{DR} = 30 A, V_{GS} = 0	–	–	-1.5	V
Input Capacitance	C_{iss}	V_{DS} = 25 V, V_{GS} = 0, f = 1MHz	–	3170	–	pF
Output Capacitance	C_{oss}		–	440	–	pF
Reverse Transfer Capacitance	C_{rss}		–	35	–	pF
Turn-on delay time	$t_{d\ (on)}$	V_{DD} = 100V, I_D = 15 A, R_L = 6.7 Ω, V_{GS} = 10 V	–	36	–	ns
Rise time	t_r		–	25	–	ns
Turn-off delay time	$t_{d\ (off)}$		–	217	–	ns
Fall time	t_f		–	35	–	ns


Non repetitive pulse
Tc=25˚C
IDP
ID
t=100μs
t=1ms
t=10ms
t=1s
ID (A)
VDS (V)
1000
100
10
1
0.1
1
10
100
1000


(1) Tc=Ta
(2) With a 100 × 100 × 2mm
Al heat sink
(3) Without heat sink
(1)
(2)
(3)
PD (W)
Ta (˚C)
140
120
100
80
60
40
20
0
0
20
40
60
80
100
120
140
160