

2SK3665

N-channel enhancement mode MOSFET

High speed switching

Absolute Maximum Ratings

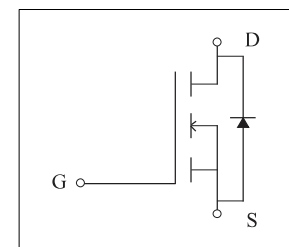
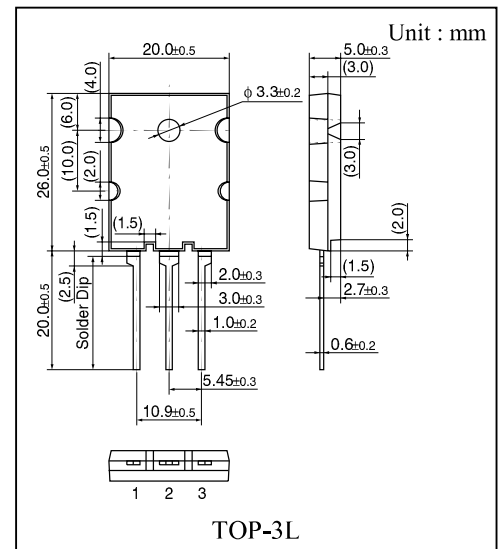
Parameter	Symbol	Rating	Unit
Drain-Source breakdown voltage	V _{DSS}	200	V
Gate-Source voltage	V _{GSS}	±30	V
Drain current	DC	I _D	30 A
	Pulse	I _{DP}	120 A
Avalanche energy capability *1	EAS	1800	mJ
Allowable power dissipation	T _c = 25 °C *2	P _D	180 W
	T _a = 25 °C *3	P _D	3 W
Junction temperature	T _j	150	°C
Storage temperature	T _{stg}	-55 to +150	°C

*1 : Guarantee of single pulse avalanche energy.

(L = 2mH, I_L = 30A, V_{DD} = 100V, 1pulse, T_a = 25 °C)*2 : T_c = 25 °C*3 : T_a = 25 °C (Without heat sink)

Electrical Characteristics (T_c = 25 ± 3 °C)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Drain Cutoff Current	I _{DSS}	V _{DS} = 160V, 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	200	—	—	V
Gate Threshold Voltage	V _{th}	V _{DS} = 10 V, I _D = 1 mA	1.5	—	3.5	V
Drain-source on Resistance	R _{DS(on)}	V _{GS} = 10 V, I _D = 15 A	—	50	68	mΩ
Forward Transfer Admittance	Y _{fs}	V _{DS} = 25 V, I _D = 15 A	8	16	—	S
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		—	42	—	ns
Turn-off delay time	t _{d(off)}		—	230	—	ns
Fall time	t _f		—	50	—	ns



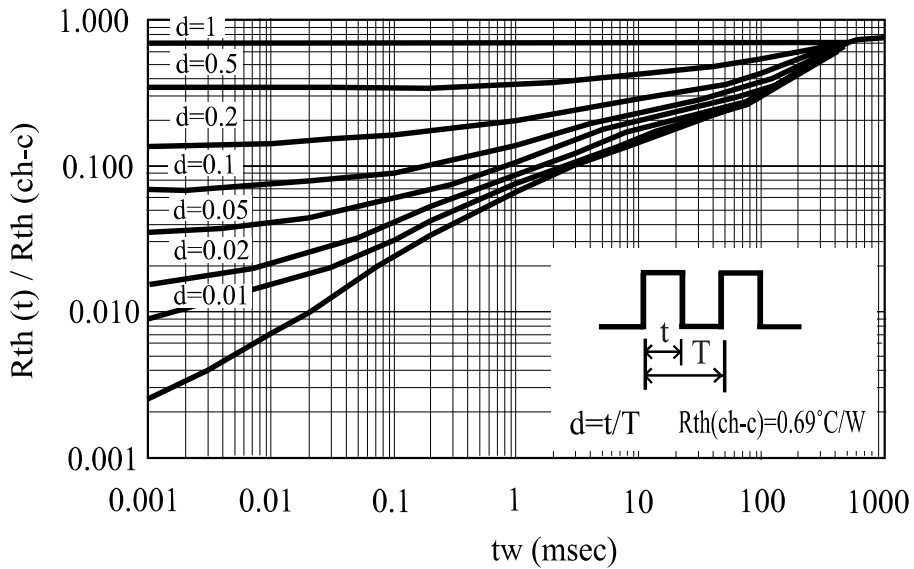
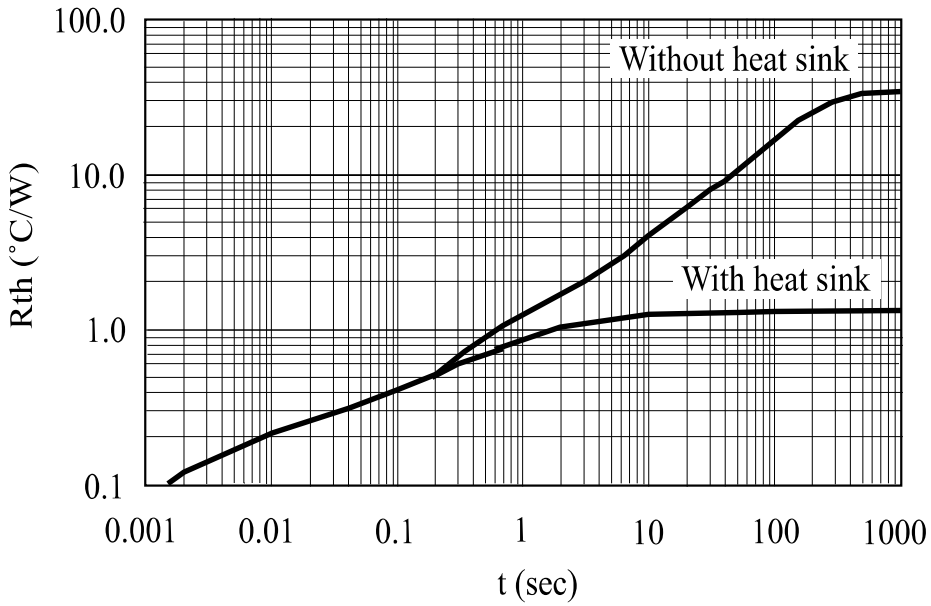
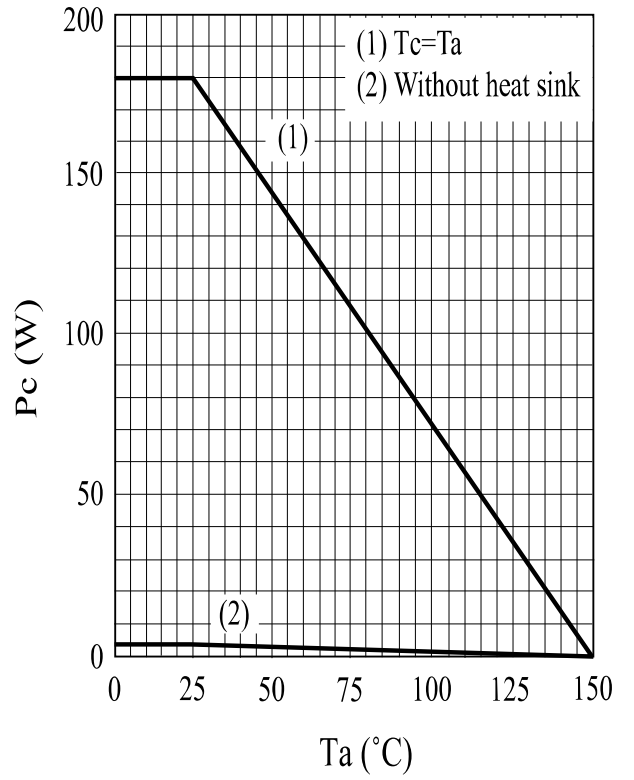
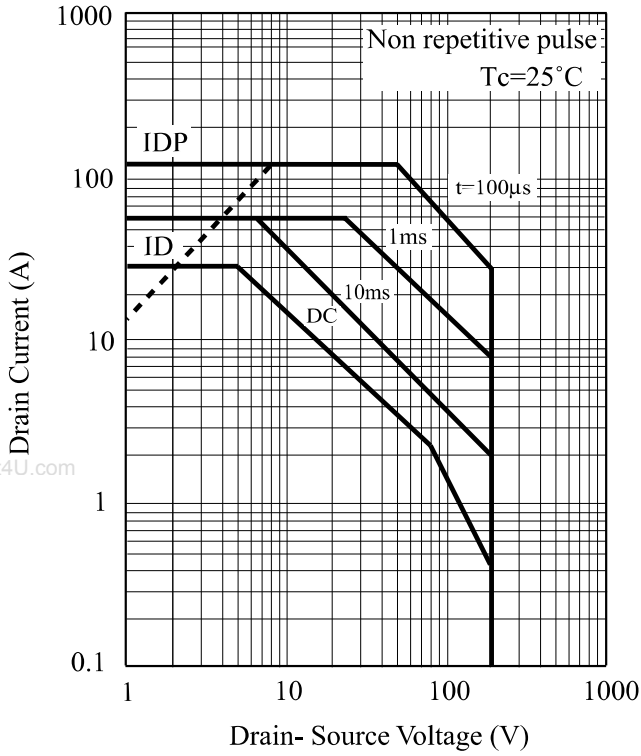
■ Electrical Characteristics ($T_c = 25 \pm 3 \text{ }^\circ\text{C}$)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Diode forward Voltage	V_{DSF}	$I_{DR} = 30\text{V}, V_{GS} = 0$	–	–	-1.5	V
Reverse recovery Time	T_{rr}	$L = 230 \mu\text{H}, V_{DD} = 100\text{V}$	–	182	–	n s
Reverse recovery Charge	Q_{rr}	$I_{DR} = 15 \text{ A}, di/dt = 100\text{A}/\mu\text{s}$	–	819	–	n C
Total Gate Charge	Q_g	$V_{DD} = 100 \text{ V}, I_D = 25 \text{ A}$ $V_{GS} = 10 \text{ V}$	–	55	–	n C
Gate-Source Charge	Q_{gs}		–	10	–	n C
Gate-Drain Charge	Q_{gd}		–	16	–	n C

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■ Thermal characteristics

Thermal resistance (channel to case)	$R_{th} \text{ (ch-c)}$		–	–	0.69	$^\circ\text{C}/\text{W}$
Thermal resistance (channel to ambient)	$R_{th} \text{ (ch-a)}$		–	–	41.6	$^\circ\text{C}/\text{W}$



Derating curve for safety operation

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