

# MOS FET 2SK3800

## Absolute Maximum Ratings (Ta=25°C)

Symbol	Ratings	Unit
V <sub>DSS</sub>	40	V
V <sub>GSS</sub>	±20	V
I <sub>D</sub>	±70	A
I <sub>D</sub> (pulse)*1	±140	A
P <sub>D</sub>	80 (Tc=25°C)	W
EAS*2	400	mJ
T <sub>ch</sub>	150	°C
T <sub>stg</sub>	-40 to +150	°C

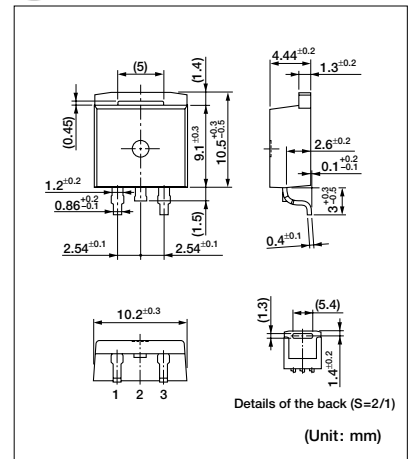
\*1: P<sub>w</sub> ≤ 100μs, duty cycle ≤ 1%

\*2: V<sub>DD</sub> = 20V, L = 1mH, I<sub>L</sub> = 20A, unclamped, R<sub>θ</sub> = 50Ω

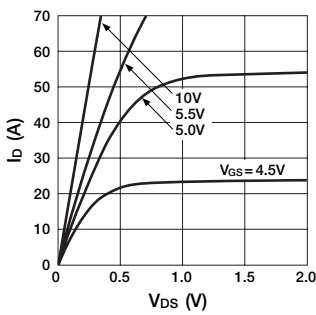
## Electrical Characteristics (Ta=25°C)

Symbol	Test Conditions	Ratings			Unit
		min	typ	max	
V <sub>(BR) DSS</sub>	I <sub>D</sub> = 100μA, V <sub>GS</sub> = 0V	40			V
I <sub>GSS</sub>	V <sub>GS</sub> = ±15V			±10	μA
I <sub>DSS</sub>	V <sub>DS</sub> = 40V, V <sub>GS</sub> = 0V			100	μA
V <sub>TH</sub>	V <sub>DS</sub> = 10V, I <sub>D</sub> = 1mA	2.0	3.0	4.0	V
R <sub>e</sub> (y/s)	V <sub>DS</sub> = 10V, I <sub>D</sub> = 35A	30	50		S
R <sub>DS (ON)</sub>	V <sub>GS</sub> = 10V, I <sub>D</sub> = 35A		5.0	6.0	mΩ
C <sub>iss</sub>	V <sub>DS</sub> = 10V		5100		pF
C <sub>oss</sub>	f = 1.0MHz		1200		pF
C <sub>rss</sub>	V <sub>GS</sub> = 0V		860		pF
t <sub>d (on)</sub>	I <sub>D</sub> = 35A		100		ns
t <sub>r</sub>	V <sub>DD</sub> = 20V, R <sub>G</sub> = 22Ω		100		ns
t <sub>d (off)</sub>	R <sub>L</sub> = 0.57Ω, V <sub>GS</sub> = 10V		300		ns
t <sub>f</sub>			130		ns
V <sub>SD</sub>	I <sub>SD</sub> = 50A, V <sub>GS</sub> = 0V		0.9	1.2	V
t <sub>rr</sub>	I <sub>SD</sub> = 25A, di/dt = 50A/μs		110		ns
R <sub>th (ch-c)</sub>				1.56	°C/W
R <sub>th (ch-a)</sub>				62.5	°C/W

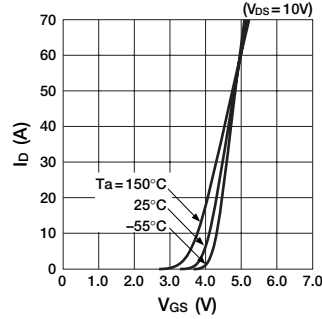
## External Dimensions TO220S



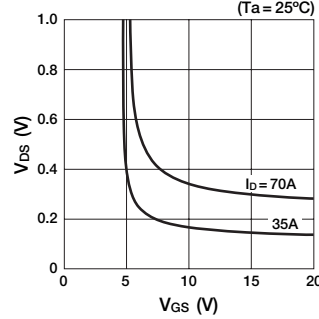
■ I<sub>D</sub>—V<sub>DS</sub> Characteristics (typ.)



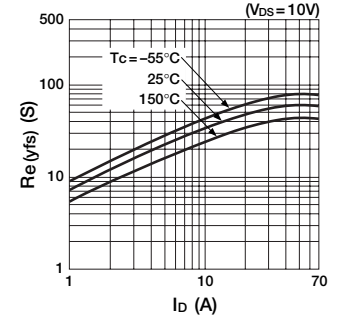
■ I<sub>D</sub>—V<sub>GS</sub> Characteristics (typ.)



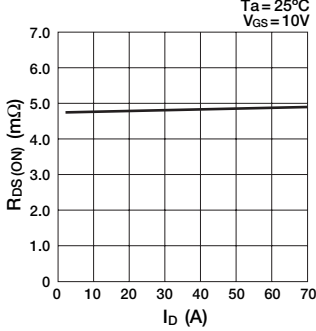
■ V<sub>DS</sub>—V<sub>GS</sub> Characteristics (typ.)



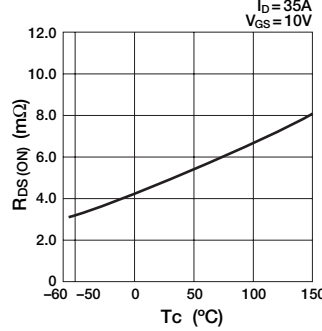
■ R<sub>e</sub> (y/s) — I<sub>D</sub> Characteristics (typ.)



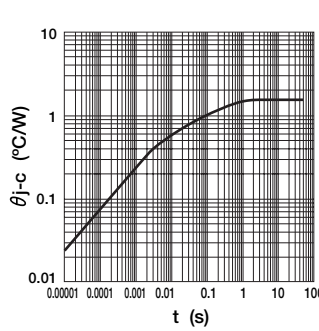
■ R<sub>DS (ON)</sub> — I<sub>D</sub> Characteristics (typ.)



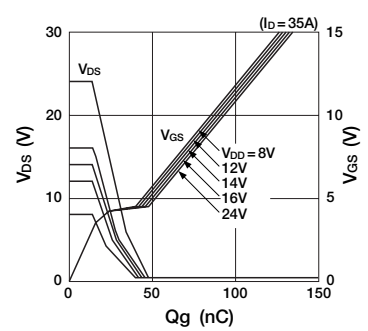
■ R<sub>DS (ON)</sub> — T<sub>C</sub> Characteristics (typ.)



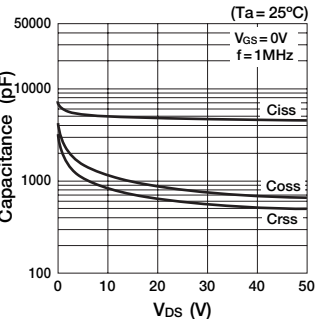
■ θ<sub>j-c</sub> — t Characteristics (Single pulse)



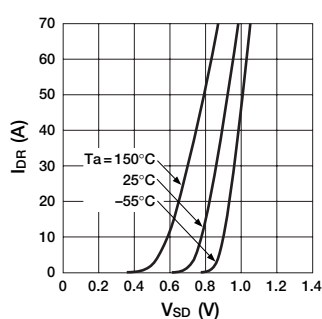
■ Dynamic I/O Characteristics (typ.)



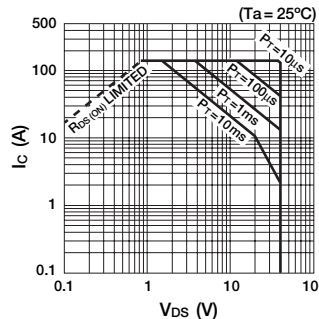
■ Capacitance—V<sub>DS</sub> Characteristics (typ.)



■ I<sub>DR</sub>—V<sub>SD</sub> Characteristics (typ.)



■ Safe Operating Area (single pulse)



■ P<sub>D</sub>—T<sub>C</sub> Characteristics

