

# 2SK3004

## External dimensions 1 ..... FM20

### Absolute Maximum Ratings (Ta = 25°C)

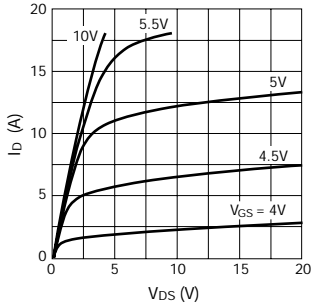
Symbol	Ratings	Unit
V <sub>DSS</sub>	250	V
V <sub>GSS</sub>	±20	V
I <sub>D</sub>	±18	A
I <sub>D</sub> (pulse) *1	±72	A
P <sub>D</sub>	35 (T <sub>c</sub> = 25°C)	W
E <sub>AS</sub> *2	120	mJ
I <sub>AS</sub>	18	A
T <sub>ch</sub>	150	°C
T <sub>stg</sub>	-55 to +150	°C

\*1: P<sub>w</sub> ≤ 100μs, duty cycle ≤ 1%  
 \*2: V<sub>DD</sub> = 25V, L = 670μH, I<sub>L</sub> = 18A, unclamped, R<sub>G</sub> = 50Ω, See Figure 1 on Page 5.

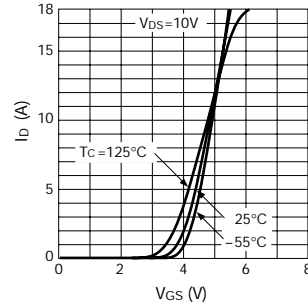
### Electrical Characteristics (Ta = 25°C)

Symbol	Ratings			Unit	Conditions
	min	typ	max		
V(BR)DSS	250			V	I <sub>D</sub> = 100μA, V <sub>GS</sub> = 0V
I <sub>GSS</sub>			±100	nA	V <sub>GS</sub> = ±20V
I <sub>DSS</sub>			100	μA	V <sub>DS</sub> = 250V, V <sub>GS</sub> = 0V
V <sub>TH</sub>	2.0		4.0	V	V <sub>DS</sub> = 10V, I <sub>D</sub> = 1mA
Re (yfs)	7	11		S	V <sub>DS</sub> = 10V, I <sub>D</sub> = 9A
R <sub>DS(on)</sub>		200	250	mΩ	V <sub>GS</sub> = 10V, I <sub>D</sub> = 9A
C <sub>iss</sub>		850		pF	V <sub>DS</sub> = 10V, f = 1.0MHz, V <sub>GS</sub> = 0V
C <sub>oss</sub>		550		pF	
C <sub>rss</sub>		250		pF	
t <sub>d(on)</sub>		20		ns	I <sub>D</sub> = 9A, V <sub>DD</sub> ≐ 100V, R <sub>L</sub> = 11.1Ω, V <sub>GS</sub> = 10V, See Figure 2 on Page 5.
t <sub>r</sub>		50		ns	
t <sub>d(off)</sub>		65		ns	
t <sub>f</sub>		80		ns	
V <sub>SD</sub>		1.0	1.5	V	I <sub>SD</sub> = 18A, V <sub>GS</sub> = 0V
t <sub>rr</sub>		700		ns	I <sub>SD</sub> = ±100mA

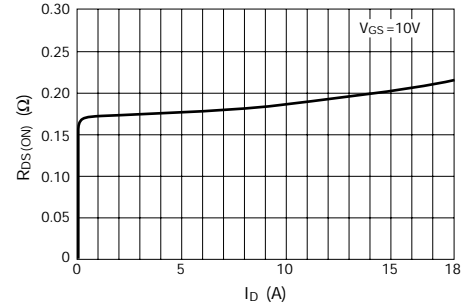
I<sub>D</sub> - V<sub>DS</sub> Characteristics (typical)



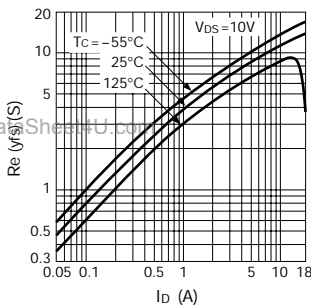
I<sub>D</sub> - V<sub>GS</sub> Characteristics (typical)



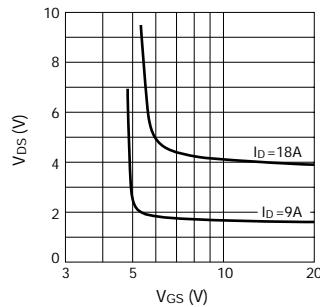
R<sub>DS(on)</sub> - I<sub>D</sub> Characteristics (typical)



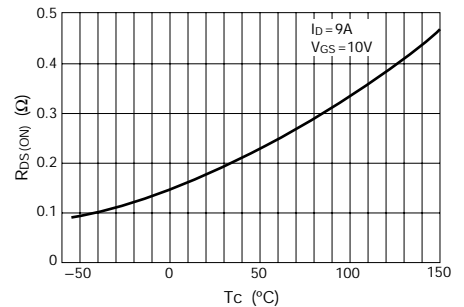
Re (yfs) - I<sub>D</sub> Characteristics (typical)



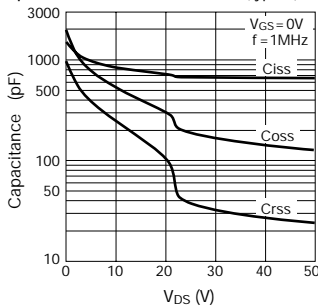
V<sub>DS</sub> - V<sub>GS</sub> Characteristics (typical)



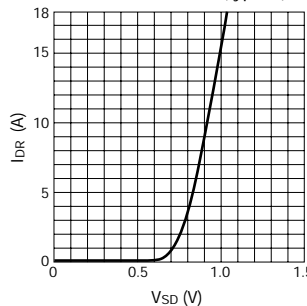
R<sub>DS(on)</sub> - T<sub>c</sub> Characteristics (typical)



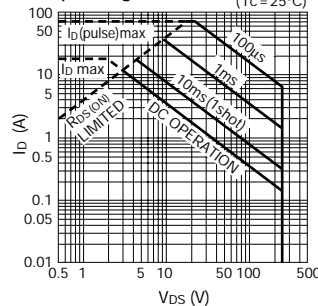
Capacitance - V<sub>DS</sub> Characteristics (typical)



I<sub>DR</sub> - V<sub>SD</sub> Characteristics (typical)



Safe Operating Area (T<sub>c</sub> = 25°C)



P<sub>D</sub> - T<sub>a</sub> Characteristics

