STA506A

N-channel
General purpose

External dimensions Ⓓ⋯STA400

Absolute maximum ratings (Ta=25°C)

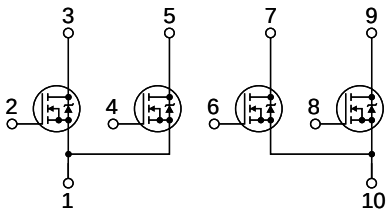
Symbol	Ratings	Unit
V_{DSS}	100	V
V_{GSS}	±20	V
I_D	±2	A
$I_{D(pulse)}$	±5 (PW≤100μs, Du≤1%)	A
E_{AS}*	5.6	mJ
P_T	4 (Ta=25°C)	W
	20 (Tc=25°C)	W
Tch	150	°C
Tstg	–40 to +150	°C

* : V_{DD}=25V, L=2.2mH, I_L=2A, unclamped, R_G=50Ω, see Fig. E on page 15.

Electrical characteristics (Ta=25°C)

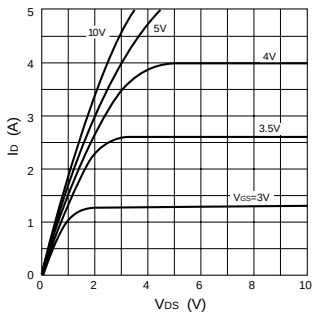
Symbol	Specification			Unit	Conditions
	min	typ	max		
$V_{(BR)DSS}$	100			V	I_D=100μA, V_{GS}=0V
I_{GSS}			±100	nA	V_{GS}=±20V
I_{DSS}			100	μA	V_{DS}=100V, V_{GS}=0V
V_{TH}	1.0		2.0	V	V_{DS}=10V, I_D=250μA
$Re_{(yfs)}$	1.5	2.0		S	V_{DS}=10V, I_D=1A
$R_{DS(ON)}$		0.55	0.80	Ω	V_{GS}=10V, I_D=1A
		0.70	0.95	Ω	V_{GS}=4V, I_D=1A
Ciss		150		pF	V_{DS}=25V,
Coss		45		pF	f=1.0MHz,
Crss		9		pF	V_{GS}=0V
$t_{d(on)}$		15		ns	I_D=1A,
tr		30		ns	V_{DD}≒50V,
$t_{d(off)}$		40		ns	R_L=50Ω,
tf		30		ns	V_{GS}=5V, see Fig. 3 on page 16.
V_{SD}		1.0	1.5	V	I_{SD}=2A, V_{GS}=0V
trr		160		ns	I_{SD}=±100mA

■Equivalent circuit diagram

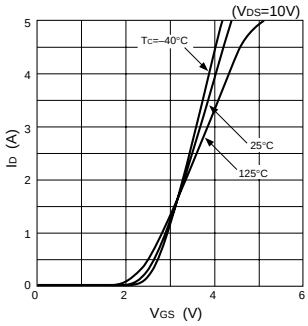


Characteristic curves

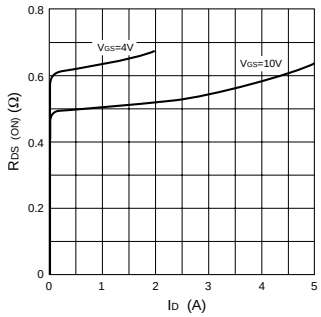
I_D-V_{DS} Characteristics (Typical)



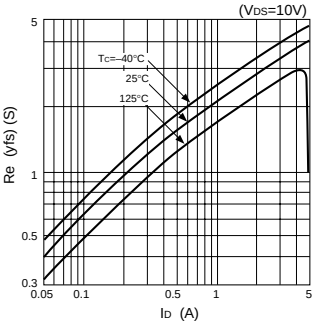
I_D-V_{GS} Characteristics (Typical)



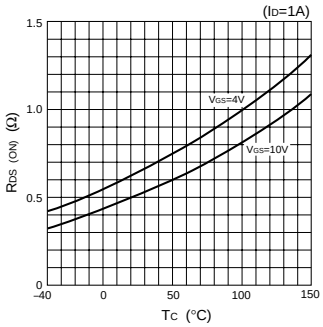
$R_{DS(ON)}$-I_D Characteristics (Typical)



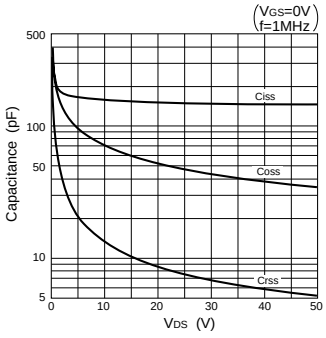
$Re_{(yfs)}$-I_D Characteristics (Typical)



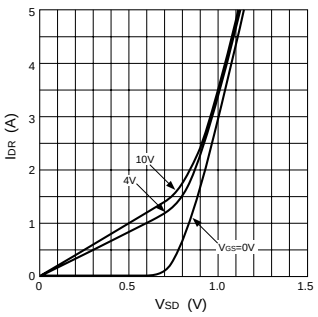
$R_{DS(ON)}$-T_C Characteristics (Typical)



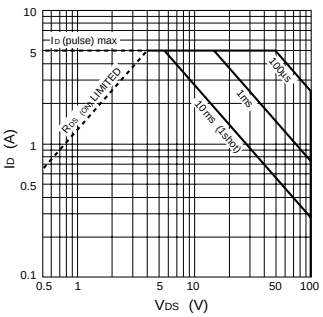
Capacitance-V_{DS} Characteristics (Typical)



I_{DR}-V_{SD} Characteristics (Typical)



P_T-T_a Characteristics



Safe Operating Area (SOA)