SLA5002

N-channel
With built-in flywheel diode

External dimensions Ⓐ···SLA

Absolute maximum ratings

(Ta=25°C)

Symbol	Ratings	Unit
V$_{DSS}$	100	V
V$_{GSS}$	±20	V
I$_D$	±5	A
I$_{D(pulse)}$	±10 (PW≤1ms)	A
E$_{AS}$*	30	mJ
I$_F$	5 (PW≤0.5ms, Du≤25%)	A
I$_{FSM}$	10 (PW≤10ms, Single Pulse)	A
V$_R$	120	V
P$_T$	5 (Ta=25°C, with all circuits operating, without heatsink)	W
	35 (Tc=25°C, with all circuits operating, with infinite heatsink)	W
θj-a	25 (Junction-Air, Ta=25°C, with all circuits operating)	°C/W
θj-c	3.57 (Junction-Case, Tc=25°C, with all circuits operating)	°C/W
V$_{ISO}$	1000 (Between fin and lead pin, AC)	Vrms
Tch	150	°C
Tstg	−40 to +150	°C

* : V$_{DD}$=20V, L=10mH, I$_D$=2.5A, unclamped, see Fig. E on page 15

■Equivalent circuit diagram
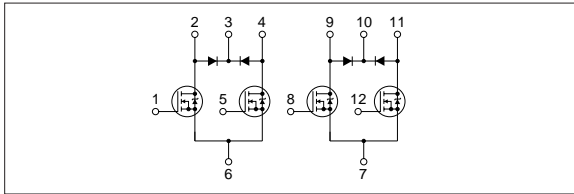
Electrical characteristics

(Ta=25°C)

Symbol	Specification min	typ	max	Unit	Conditions
V$_{(BR)DSS}$	100			V	I$_D$=250µA, V$_{GS}$=0V
I$_{GSS}$			±500	nA	V$_{GS}$=±20V
I$_{DSS}$			250	µA	V$_{DS}$=100V, V$_{GS}$=0V
V$_{TH}$	2.0		4.0	V	V$_{DS}$=10V, I$_D$=250µA
Re(yfs)	2.4	3.7		S	V$_{DS}$=10V, I$_D$=5A
R$_{DS(ON)}$		0.27	0.30	Ω	V$_{GS}$=10V, I$_D$=5A
Ciss		350		pF	V$_{DS}$=25V, f=1.0MHz,
Coss		130		pF	V$_{GS}$=0V
ton		60		ns	I$_D$=5A, V$_{DD}$≒50V, V$_{GS}$=10V,
toff		40		ns	see Fig. 3 on page 16.
V$_{SD}$		1.1	1.8	V	I$_{SD}$=5A, V$_{GS}$=0V
trr		330		ns	I$_{SD}$=±100mA

●Diode for flyback voltage absorption

Symbol	Specification min	typ	max	Unit	Conditions
V$_R$	120			V	I$_R$=10µA
V$_F$		1.0	1.2	V	I$_F$=1A
I$_R$			10	µA	V$_R$=120V
trr		100		ns	I$_F$=±100mA

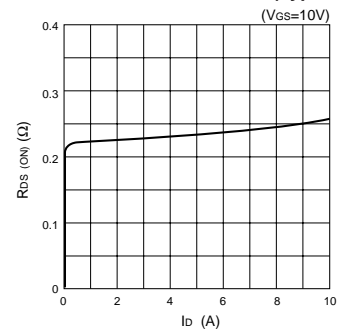## ━ Characteristic curves ━

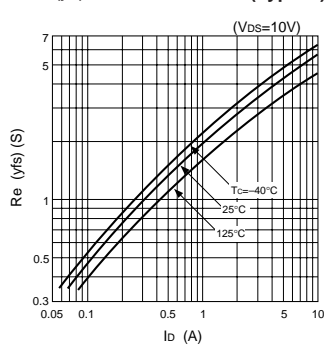### I$_D$-V$_{DS}$ Characteristics (Typical)
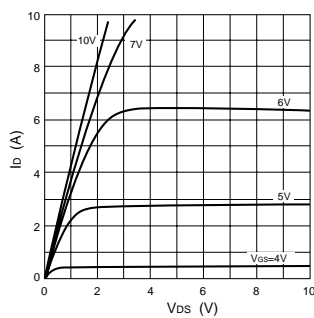
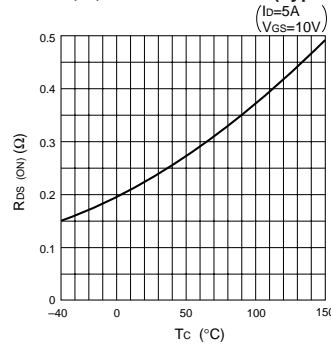
I$_D$-V$_{GS}$ Characteristics (Typical)
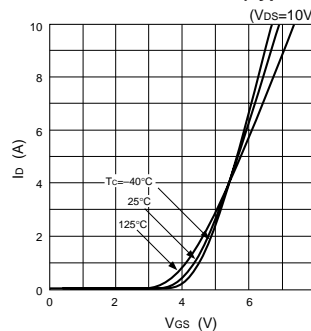
R$_{DS(ON)}$-I$_D$ Characteristics (Typical)
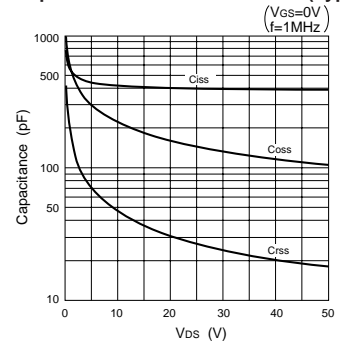

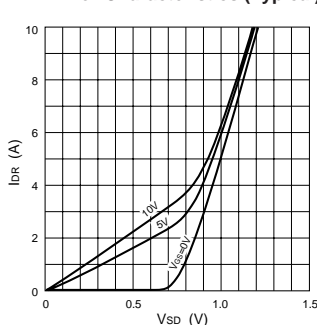### Re(yfs)-I$_D$ Characteristics (Typical)

R$_{DS(ON)}$-Tc Characteristics (Typical)

Capacitance-V$_{DS}$ Characteristics (Typical)

I$_{DR}$-V$_{SD}$ Characteristics (Typical)

Safe Operating Area (SOA)

P$_T$-T$_a$ Characteristics