

SMA5114

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N-channel

捷多邦, 专业PCB打样工厂, 24小时加急出货

With built-in flywheel diode

External dimensions **B**... SMA

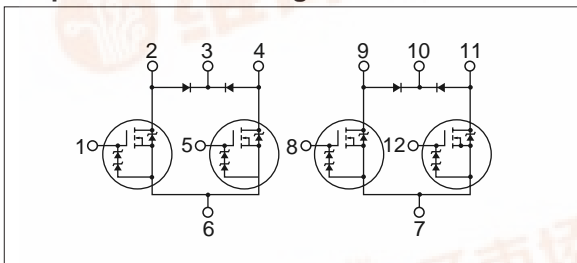
Absolute maximum ratings

($T_a=25^\circ\text{C}$)

Symbol	Ratings	Unit
V_{DSS}	60	V
V_{GSS}	± 20	V
I_D	± 3	A
$I_{D(pulse)}$	± 6 (PW $\leq 1\text{ms}$, Du $\leq 1\%$)	A
E_{AS}^*	6.8	mJ
I_{AS}	3	A
P_T	4 ($T_a=25^\circ\text{C}$, with all circuits operating, without heatsink)	W
	28 ($T_c=25^\circ\text{C}$, with all circuits operating, with infinite heatsink)	W
θ_{j-a}	31.2 (Junction-Air, $T_a=25^\circ\text{C}$, with all circuits operating)	$^\circ\text{C/W}$
θ_{j-c}	4.46 (Junction-Case, $T_c=25^\circ\text{C}$, with all circuits operating)	$^\circ\text{C/W}$
T_{ch}	150	$^\circ\text{C}$
T_{stg}	-40 to +150	$^\circ\text{C}$

* : $V_{DD}=20\text{V}$, $L=1\text{mH}$, $I_L=3\text{A}$, unclamped, see Fig. E on page 15.

Equivalent circuit diagram



Electrical characteristics

($T_a=25^\circ\text{C}$)

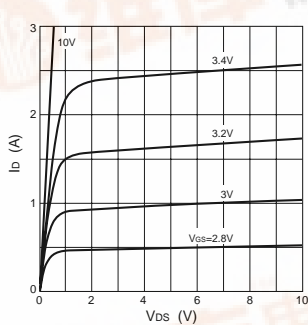
Symbol	Specification			Unit	Conditions
	min	typ	max		
$V_{(BR)DSS}$	60			V	$I_D=100\mu\text{A}$, $V_{GS}=0\text{V}$
I_{GSS}			± 10	μA	$V_{DS}=60\text{V}$, $V_{GS}=\pm 20\text{V}$
I_{DSS}			100	μA	$V_{DS}=60\text{V}$, $V_{GS}=0\text{V}$
V_{TH}	1.0		2.5	V	$V_{DS}=10\text{V}$, $I_D=250\mu\text{A}$
$Re_{(yfs)}$	1.0	2.3		S	$V_{DS}=10\text{V}$, $I_D=1.0\text{A}$
		0.20	0.25	Ω	$V_{GS}=10\text{V}$, $I_D=1.0\text{A}$
$R_{DS(ON)}$		0.25	0.30	Ω	$V_{GS}=4\text{V}$, $I_D=1.0\text{A}$
		170		pF	$V_{DS}=10\text{V}$, $f=1.0\text{MHz}$, $V_{GS}=0\text{V}$
C_{iss}		130		pF	
C_{oss}		20		pF	
C_{rss}				pF	
$td_{(on)}$		80		ns	$I_D=1\text{A}$, $V_{DD}\div 30\text{V}$, $R_L=30\Omega$, $V_{GS}=5\text{V}$, see Fig. 3 on page 16.
tr		170		ns	
$td_{(off)}$		330		ns	
tf		150		ns	
V_{SD}		1.0	1.5	V	$I_{SD}=3\text{A}$, $V_{GS}=0\text{V}$
t_{rr}		80		ns	$I_{SD}=\pm 100\text{mA}$

Diode for flyback voltage absorption

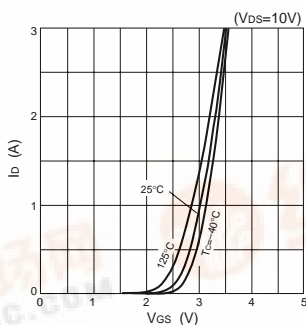
Symbol	Specification			Unit	Conditions
	min	typ	max		
V_R	120			V	$I_R=10\mu\text{A}$
V_F		1.0	1.2	V	$I_F=1\text{A}$
I_R			10	μA	$V_R=120\text{V}$
t_{rr}		100		ns	$I_F=\pm 100\text{mA}$

Characteristic curves

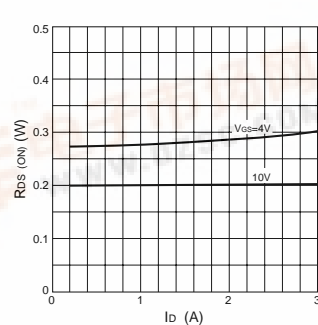
I_D - V_{DS} Characteristics (Typical)



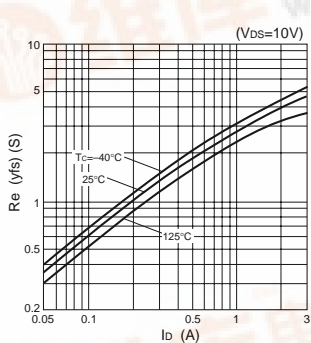
I_D - V_{GS} Characteristics (Typical)



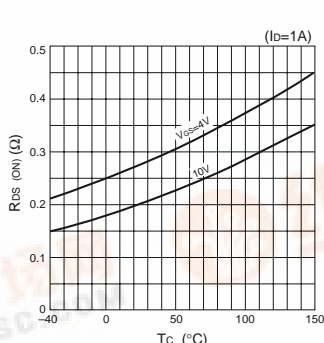
$R_{DS(ON)}$ - I_D Characteristics (Typical)



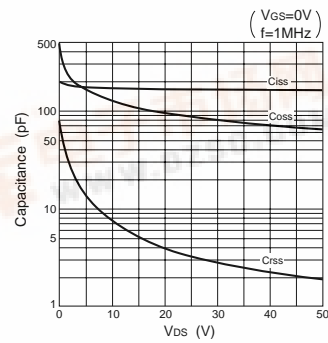
$Re_{(yfs)}$ - I_D Characteristics (Typical)



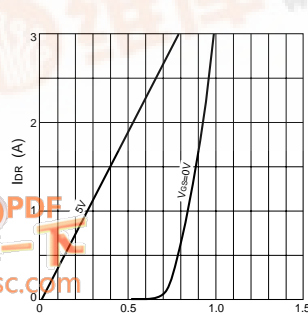
$R_{DS(ON)}$ - T_c Characteristics (Typical)



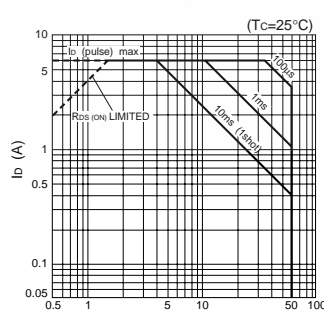
Capacitance- V_{DS} Characteristics (Typical)



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



Safe Operating Area (SOA)



P_T - T_a Characteristics

