

SIPMOS® Small-Signal-Transistor

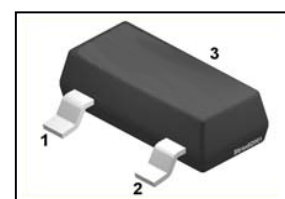
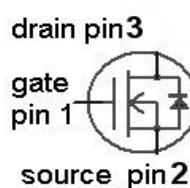
Feature

- n-channel
- enhancement mode
- Logic level
- dv/dt rated
- Pb-free lead plating, RoHS compliant

Product Summary

V_{DS}	600	V
$R_{DS(on),max}$	500	Ω
I_D	0.023	A

PG-SOT23



Type	Package	Ordering Code	Tape and Reel Information	Marking
BSS127	PG-SOT23	Q67045-A5014	E6327: 3000PCS/reel	SI

Maximum ratings, at $T_j=25\text{ }^\circ\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Value	Unit
Continuous drain current	I_D	$T_A=25\text{ }^\circ\text{C}$	0.021	A
		$T_A=70\text{ }^\circ\text{C}$	0.017	
Pulsed drain current	$I_{D,pulse}$	$T_A=25\text{ }^\circ\text{C}$	0.09	
Reverse diode dv/dt	dv/dt	$I_D=0.09\text{ A}$, $V_{DS}=480\text{ V}$, $di/dt=200\text{ A}/\mu\text{s}$, $T_{j,max}=150\text{ }^\circ\text{C}$	6	kV/ μs
Gate source voltage	V_{GS}		± 20	V
ESD sensitivity (HBM) as per MIL-STD 883			Class 1	
Power dissipation	P_{tot}	$T_A=25\text{ }^\circ\text{C}$	0.50	W
Operating and storage temperature	T_j, T_{stg}		-55 ... 150	$^\circ\text{C}$
IEC climatic category; DIN IEC 68-1			55/150/56	

Parameter	Symbol	Conditions	Values			Unit
			min.	typ.	max.	

Thermal characteristics

Thermal resistance, junction - minimal footprint	R_{thJA}		-	-	250	K/W
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Electrical characteristics, at $T_j=25\text{ °C}$, unless otherwise specified**Static characteristics**

Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS}=0\text{ V}$, $I_D=250\text{ }\mu\text{A}$	600	-	-	V
Gate threshold voltage	$V_{GS(th)}$	$V_{DS}=0\text{ V}$, $I_D=8\text{ }\mu\text{A}$	1.4	2.0	2.6	
Drain-source leakage current	$I_{D(off)}$	$V_{DS}=600\text{ V}$, $V_{GS}=0\text{ V}$, $T_j=25\text{ °C}$	-	-	0.1	μA
		$V_{DS}=600\text{ V}$, $V_{GS}=0\text{ V}$, $T_j=150\text{ °C}$	-	-	10	
Gate-source leakage current	I_{GSS}	$V_{GS}=20\text{ V}$, $V_{DS}=0\text{ V}$	-	10	100	nA
Drain-source on-state resistance	$R_{DS(on)}$	$V_{GS}=4.5\text{ V}$, $I_D=0.016\text{ A}$	-	330	600	Ω
		$V_{GS}=10\text{ V}$, $I_D=0.016\text{ A}$	-	310	500	
Transconductance	g_{fs}	$ V_{DS} >2 I_D R_{DS(on)max}$, $I_D=0.01\text{ A}$	0.007	0.015	-	S

Parameter	Symbol	Conditions	Values			Unit
			min.	typ.	max.	

Dynamic characteristics

Input capacitance	C_{iss}	$V_{GS}=0\text{ V}, V_{DS}=25\text{ V},$ $f=1\text{ MHz}$	-	21	28	pF
Output capacitance	C_{oss}		-	2.4	3	
Reverse transfer capacitance	C_{rss}		-	1.0	1.5	
Turn-on delay time	$t_{d(on)}$	$V_{DD}=300\text{ V},$ $V_{GS}=10\text{ V}, I_D=0.01\text{ A},$ $R_G=6\ \Omega$	-	6.1	19.0	ns
Rise time	t_r		-	9.7	14.5	
Turn-off delay time	$t_{d(off)}$		-	14	21	
Fall time	t_f		-	115	170	

Gate Charge Characteristics

Gate to source charge	Q_{gs}	$V_{DD}=400\text{ V},$ $I_D=0.01\text{ A},$ $V_{GS}=0\text{ to }10\text{ V}$	-	0.05	0.08	nC
Gate to drain charge	Q_{gd}		-	1.2	1.8	
Gate charge total	Q_g		-	1.4	2.1	
Gate plateau voltage	$V_{plateau}$		-	3.5	-	V

Reverse Diode

Diode continuous forward current	I_S	$T_A=25\text{ }^\circ\text{C}$	-	-	0.016	A
Diode pulse current	$I_{S,pulse}$		-	-	0.09	
Diode forward voltage	V_{SD}	$V_{GS}=0\text{ V}, I_F=0.016\text{ A},$ $T_J=25\text{ }^\circ\text{C}$	-	0.82	1.2	V
Reverse recovery time	t_{rr}	$V_R=300\text{ V},$ $I_F=0.016\text{ A},$ $di_F/dt=100\text{ A}/\mu\text{s}$	-	160	240	ns
Reverse recovery charge	Q_{rr}		-	13.2	19.8	