

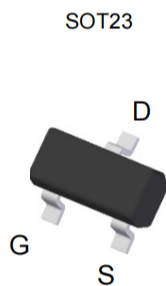
Product Summary

V_{DS}	20V
$R_{DS(ON)}$	22m Ω
I_D	6.5A

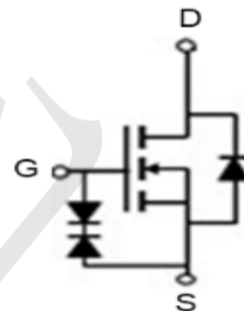
Application

- Load Switch for Portable Devices
- DC/DC Converter

Package and Pin Configuration



Circuit diagram



Marking: AF

Absolute Maximum Ratings ($T_a=25^{\circ}C$ unless otherwise specified)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	± 8	V
Drain Current-Continuous@ Current-Pulsed (Note 1)	I_D	6.5	A
	I_{DM}	30	A
Maximum Power Dissipation	P_D	1.4	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 To 150	$^{\circ}C$

THERMAL CHARACTERISTICS

Thermal Resistance, Junction-to-Ambient (Note 2)	$R_{\theta JA}$	90	$^{\circ}C/W$
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ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250μA	20			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =20V, V _{GS} =0V			1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±4.5V, V _{DS} =0V			±1	uA
		V _{GS} =±8V, V _{DS} =0V			±10	uA
ON CHARACTERISTICS (Note 3)						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.4	0.6	1	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =4.5V, I _D =6.5A		18	22	mΩ
		V _{GS} =2.5V, I _D =5.5A		24	30	mΩ
		V _{GS} =1.8V, I _D =5A		40	55	mΩ
Forward Transconductance	g _{FS}	V _{DS} =5V, I _D =6.5A		7		S
DYNAMIC CHARACTERISTICS (Note 4)						
Input Capacitance	C _{iss}	V _{DS} =10V, V _{GS} =0V, F=1.0MHz		1160		PF
Output Capacitance	C _{oss}			200		PF
Reverse Transfer Capacitance	C _{rss}			140		PF
SWITCHING CHARACTERISTICS (Note 4)						
Turn-on Delay Time	t _{d(on)}	V _{DD} =10V, I _D =1A V _{GS} =5V, R _{GEN} =3Ω		6.5		nS
Turn-on Rise Time	t _r			13		nS
Turn-Off Delay Time	t _{d(off)}			50		nS
Turn-Off Fall Time	t _f			30		nS
Total Gate Charge	Q _g	V _{DS} =10V, I _D =6.5A, V _{GS} =4.5V		10		nC
Gate-Source Charge	Q _{gs}			2.3		nC
Gate-Drain Charge	Q _{gd}			3		nC
DRAIN-SOURCE DIODE CHARACTERISTICS						
Diode Forward Voltage (Note 3)	V _{SD}	V _{GS} =0V, I _S =1A		0.76	1	V

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

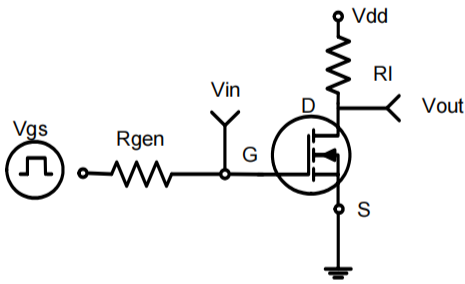


Figure 1. Switching Test Circuit

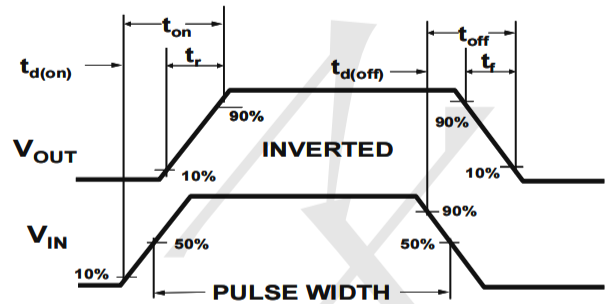


Figure 2. Switching Waveforms

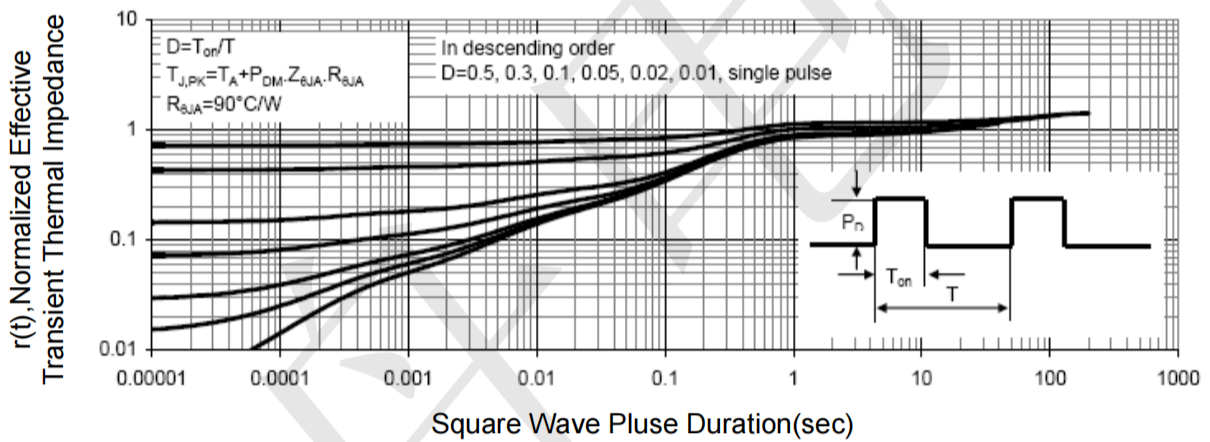


Figure 3. Normalized Maximum Transient Thermal Impedance

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