



VIS30724

30V N-Channel SGT MOSFET

General Description

- SGT MOSFET Technology
- Low $R_{DS(ON)}$ at 4.5V V_{GS}
- Low Gate Charge
- High Current Capability
- RoHS and Halogen-Free Compliant

Applications

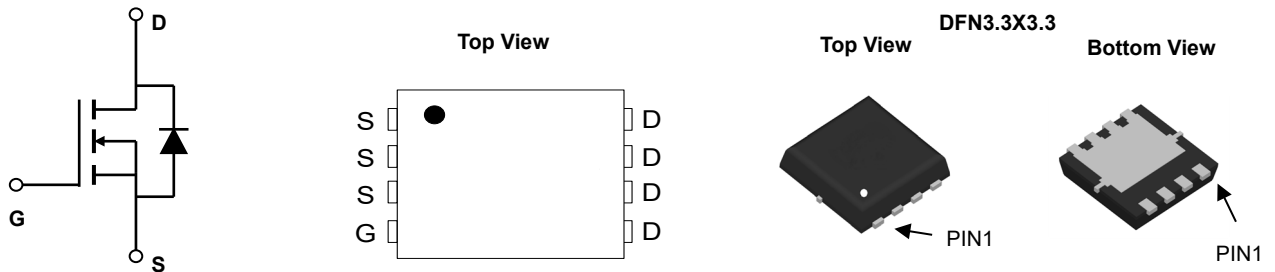
- General DC/DC Converters
- VRM Vcore for Notebook and Server
- Battery Power Management
- Motor Drive Bridge Switch

Product Summary

V_{DS}		30V
I_D	(at $V_{GS}=10V$)	40A
$R_{DS(ON)}$	(at $V_{GS}=10V$, typ)	2.4m Ω
$R_{DS(ON)}$	(at $V_{GS}=4.5V$, typ)	3.5m Ω

100% UIS Tested

100% R_g Tested



Orderable Part Number	Package Type	Form	Minimum Order Quantity
VIS30724	DFN3.3x3.3	Tape & Reel	5000

Absolute Maximum Ratings $T_A=25^\circ C$ unless otherwise noted

Parameter	Symbol	Maximum	Units
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ⁽⁵⁾	$T_C=25^\circ C$	40	A
	$T_C=100^\circ C$	TBD	A
Pulsed Drain Current ⁽³⁾	I_{DM}	150	A
Continuous Drain Current	$T_A=25^\circ C$	TBD	A
	$T_A=100^\circ C$	TBD	A
Avalanche Current ⁽³⁾	I_{AS}	33	A
Avalanche Energy $L=0.1mH$ ⁽³⁾	E_{AS}	54	mJ
Power Dissipation ⁽²⁾	$T_C=25^\circ C$	TBD	W
	$T_C=100^\circ C$	TBD	W
Power Dissipation ⁽¹⁾	$T_A=25^\circ C$	TBD	W
	$T_A=100^\circ C$	TBD	W
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	$^\circ C$

Thermal Characteristics

Parameter	Symbol	Typ	Max	Units
Maximum Junction-to-Ambient ⁽¹⁾	$R_{\theta JA}$	30		$^\circ C/W$
Maximum Junction-to-Ambient ^(1,4)		Steady-State	60	$^\circ C/W$
Maximum Junction-to-Case	$R_{\theta JC}$	2.4		$^\circ C/W$



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Electrical Characteristics (T_J=25°C unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units	
STATIC PARAMETERS							
BV _{DSS}	Drain-Source Breakdown Voltage	I _D =250μA, V _{GS} =0V	30			V	
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =30V, V _{GS} =0V T _J =55°C			1 5	μA	
I _{GSS}	Gate-Body leakage current	V _{DS} =0V, V _{GS} =±20V			±100	nA	
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	1.4	1.6	2.0	V	
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =10V, I _D =20A T _J =125°		2.4	3.0	mΩ	
		V _{GS} =4.5V, I _D =20A		TBD			
g _{FS}	Forward Transconductance	V _{DS} =5V, I _D =20A				S	
V _{SD}	Diode Forward Voltage	I _S =1A, V _{GS} =0V		0.7		V	
I _S	Maximum Body-Diode Continuous Current				TBD	A	
DYNAMIC PARAMETERS							
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =15V, f=1MHz		2600		pF	
C _{oss}	Output Capacitance				988		pF
C _{rss}	Reverse Transfer Capacitance				80		pF
R _g	Gate resistance	f=1MHz		1.5		Ω	
SWITCHING PARAMETERS							
Q _g (10V)	Total Gate Charge	V _{GS} =10V, V _{DS} =15V, I _D =20A		34		nC	
Q _g (4.5V)	Total Gate Charge			17		nC	
Q _{gs}	Gate Source Charge			TBD		nC	
Q _{gd}	Gate Drain Charge			TBD		nC	
t _{D(on)}	Turn-On Delay Time	V _{GS} =10V, V _{DS} =15V, R _L =0.75Ω, R _{GEN} =3Ω		TBD		ns	
t _r	Turn-On Rise Time			TBD		ns	
t _{D(off)}	Turn-Off Delay Time			TBD		ns	
t _f	Turn-Off Fall Time			TBD		ns	
t _{rr}	Body Diode Reverse Recovery Time	I _F =20A, di/dt=200A/μs		TBD		ns	
Q _{rr}	Body Diode Reverse Recovery Charge	I _F =20A, di/dt=200A/μs		40		nC	
<ol style="list-style-type: none"> R_{θJA} is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with T_A=25°C. The Power dissipation P_{DSM} is based on R_{θJA} ≤ 10s and the maximum allowed junction temperature of 150°C. The value in any given application depends on the user's specific board design. The power dissipation P_D is based on T_{J(MAX)}=150°C, using junction-to-case thermal resistance, and is more useful in setting the upper dissipation limit for cases where additional heatsinking is used. Single pulse width limited by junction temperature T_{J(MAX)}=150°C. R_{θJA} is the sum of the thermal impedance from junction to case R_{θJC} and case to ambient. The maximum current rating is package limited. 							