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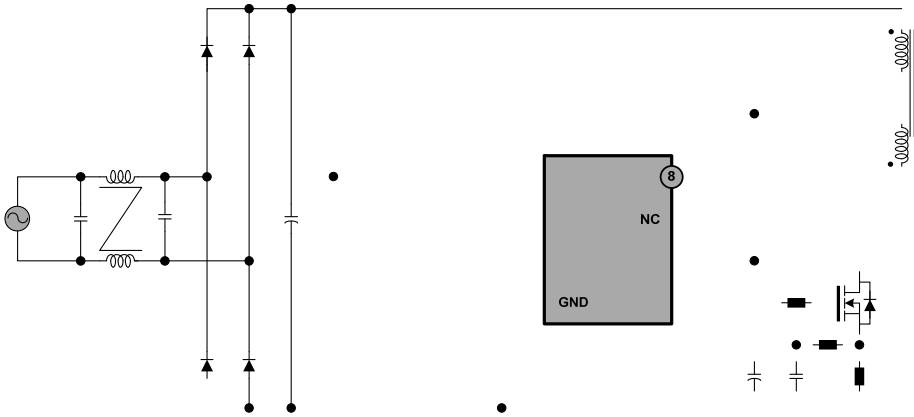
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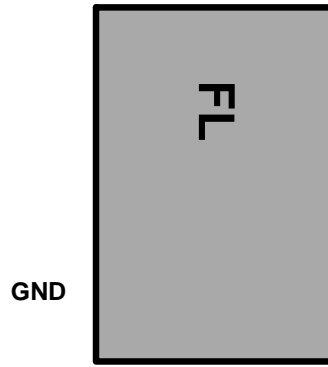
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Application Diagram



Pin Configuration



Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only.

Symbol	Parameter	Min.	Max.	Unit
V _{VDD}	DC Supply Voltage		30	V
V _{HV}	HV		500	V
V _H	GATE	-0.3	25.0	V
V _L	V _{FB} , V _{CS} , V _{DET}	-0.3	7.0	V
P _D	Power Dissipation		400	mW
T _J	Operating Junction Temperature		+150	°C
T _{STG}	Storage Temperature Range	-55	+150	°C
T _L	Lead Temperature (Soldering 10 Seconds)		+270	°C

ESD

Electrical Characteristics

Unless otherwise specified, $V_{DD}=10\sim 25\text{ V}$, $T_A=-40^\circ\text{C}\sim 125^\circ\text{C}$ ($T_A=T_J$).

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
V_{DD} Section						
V _{OP}	Continuously Operating Voltage				25	V
V _{DD-ON}	Turn-On Threshold Voltage		15	16	17	V
V _{DD-PWM-OFF}	PWM Off Threshold Voltage		9	10	11	V
V _{DD-OFF}	Turn-Off Threshold Voltage		7	8	9	V
I _{DD-ST}	Startup Current	V _{DD} =V _{DD-ON} -0.16 V GATE Open		10	20	μA
I _{DD-OP}	Operating Current	V _{DD} =15 V, f _S =60 kHz, C _L =2 nF		4.5	5.5	mA
I _{DD-GREEN}	Green-Mode Operating Supply Current (Average)	V _{DD} =15 V, f _S =2 kHz, C _L =2 nF			3.5	mA
I _{DD-PWM-OFF}	Operating Current at PWM-Off Phase	V _{DD} =V _{DD-PWM-OFF} -0.5 V	70	80	90	μA
V _{DD-OVP}	V _{DD} Over-Voltage Protection (Latch-Off)		26	27	28	V
t _{VDD-OVP}	V _{DD} OVP Debounce Time		100	150	200	μs
I _{DD-LATCH}	V _{DD} OVP Latch-Up Holding Current	V _{DD} =5 V		42		μA
HV Startup Current Source Section						
V _{HV-MIN}	Minimum Startup Voltage on Pin HV				50	V
I _{HV}	Supply Current Drawn from Pin HV	V _{AC} =90 V (V _{DC} =120 V) V _{DD} =0 V	1.5		4.0	mA
I _{HV-LC}	Leakage Current After Startup	HV=500 V, V _{DD} =V _{DD-OFF} +1 V		1	20	μA
Feedback Input Section						
A _V	Input-Voltage to Current Sense Attenuation	A _V = V _{CS} / V _{FB} , 0<V _{CS} <0.9	1/2.75	1/3.00	1/3.25	V/V
Z _{FB}	Input Impedance		3	5	7	KΩ
I _{OZ}	Bias Current	FB=V _{OZ}		1.2	2.0	mA
V _{OZ}	Zero Duty Cycle Input Voltage		0.8	1.0	1.2	V
V _{FB-OLP}	Open-Loop Protection Threshold Voltage		3.9	4.2	4.5	V
t _{D-OLP}	Debounce Time for Open-Loop/Overload Protection		46	52	62	ms
t _{SS}	Internal Soft-Start Time			5		ms

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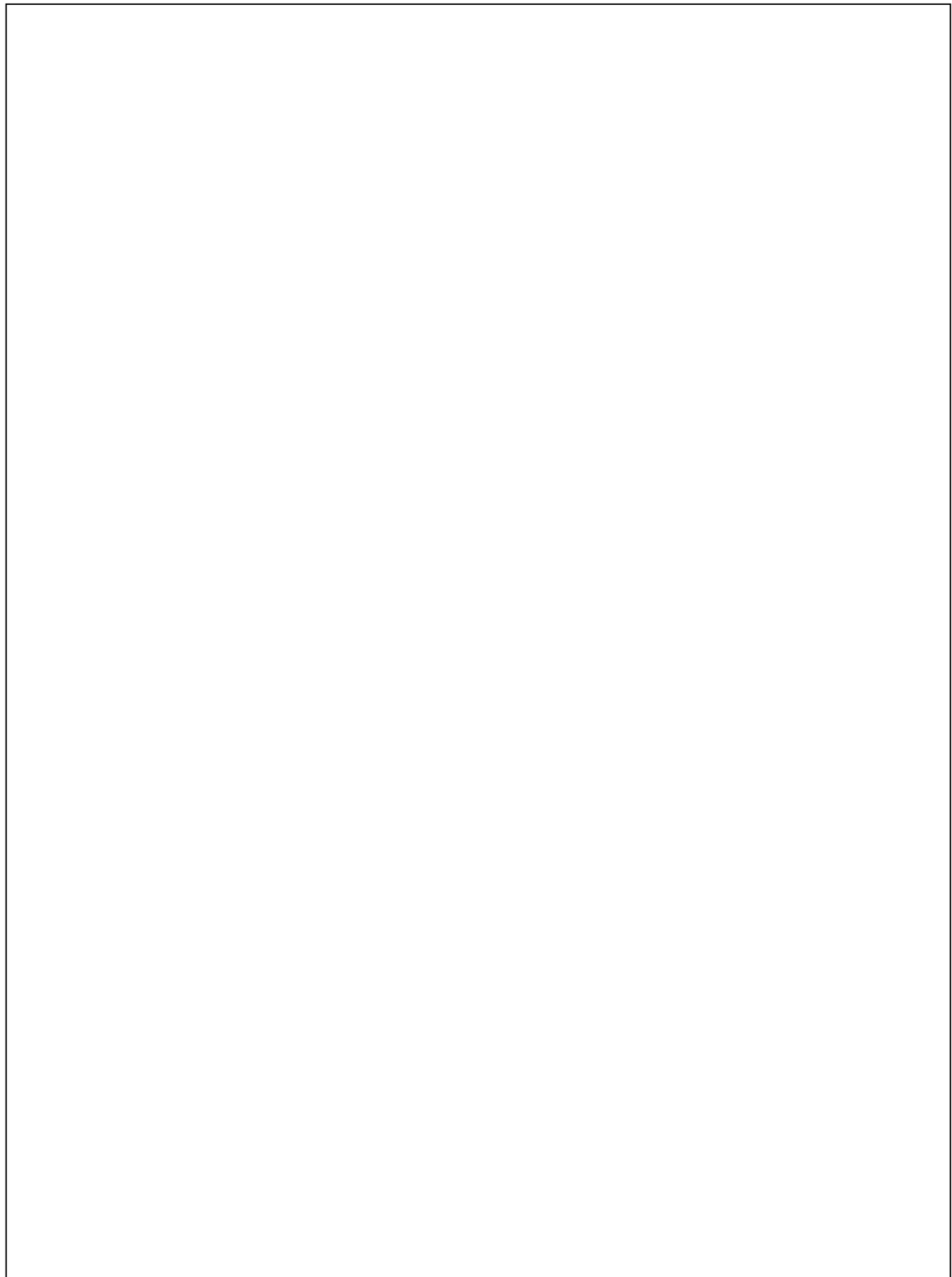
Electrical Characteristics (Continued)

Unless otherwise specified, $V_{DD}=10\sim 25\text{ V}$, $T_A=-40^\circ\text{C} \sim 125^\circ\text{C}$ ($T_A=T_J$).

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
Current Sense Section						
t_{PD}	Delay to Output		20	150	200	ns
V_{LIMIT}	Limit Voltage on CS Pin for Over-Power Compensation	$I_{DET} < 74.41\ \mu\text{A}$	0.82	0.85	0.88	V
		$I_{DET}=550\ \mu\text{A}$	0.380	0.415	0.450	
V_{SLOPE}	Slope Compensation ⁽³⁾	$t_{ON}=45\ \mu\text{s}$		0.3		V
		$t_{ON}=0\ \mu\text{s}$		0.1		
t_{BNK}	Leading-Edge-Blanking Time (MOS Turns ON)		525	625	725	ns
V_{CS-H}	V_{CS} Clamped High Voltage once CS Pin Floating	CS Pin Floating	4.5		5.0	V
t_{CS-H}	Delay Time Once CS Pin Floating	CS Pin Floating		150		μs
Internal Over-Temperature Protection Section						
T_{OTP}	Internal Threshold Temperature for OTP ⁽³⁾			+140		$^\circ\text{C}$
$T_{OTP-HYST}$	Hysteresis Temperature for Internal OTP ⁽³⁾			+15		$^\circ\text{C}$

Note:

- This parameter, although guaranteed by design, is not tested in production.





Current Sensing and PWM Current Limiting

Peak-current-mode control is

Physical Dimensions

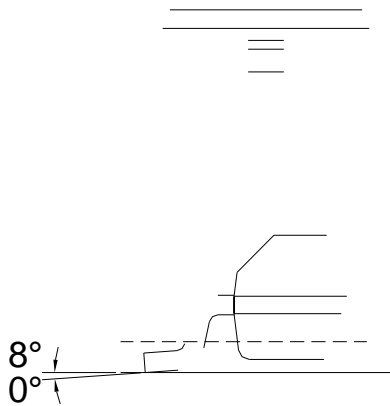


Figure 24. 8-Pin Small Outline Package (SOP)

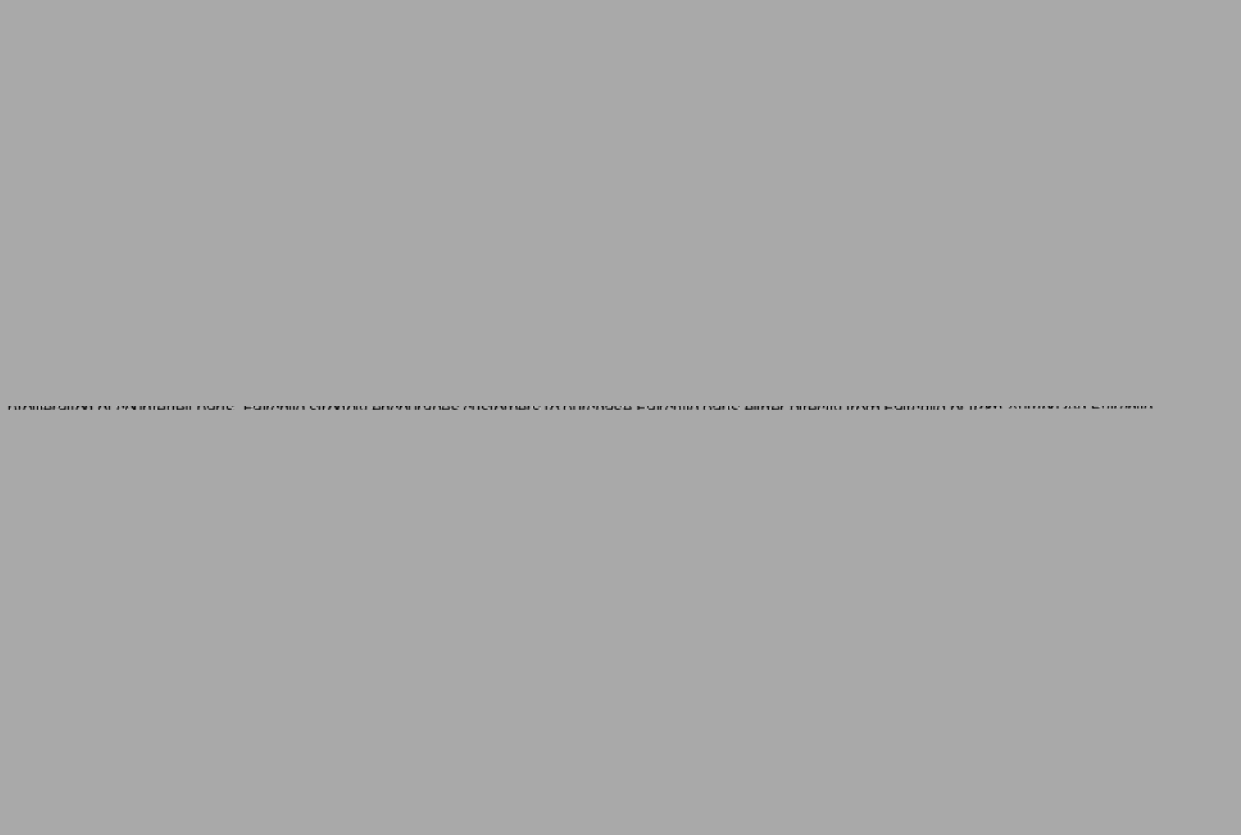
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