

Ordering Information

Breakdown Voltage	Switch Resistance	Package Option
		SO-8
375V	15Ω	HT0638LG

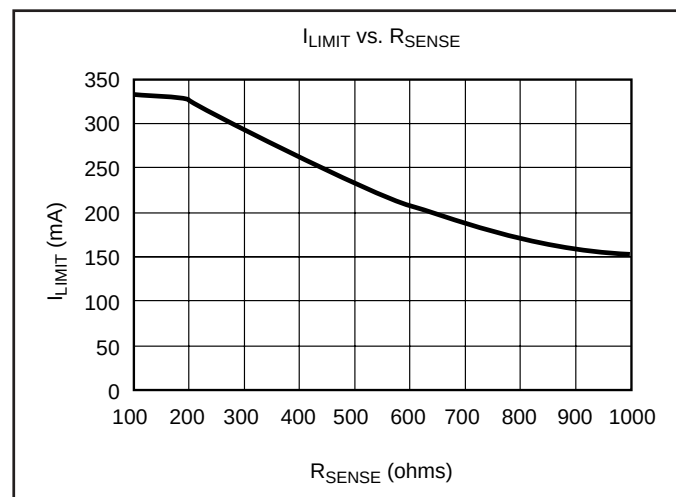
Absolute Maximum Ratings

V_{TPG} , Input line voltage	+375V
V_{TP} , Output line voltage	+18V
HKS continuous input voltage	V_{TPG}
LS1, LS2 continuous input voltage	+20V
DP continuous input voltage	+5V
Storage temperature	-65°C to +150°C
Soldering temperature*	+300°C

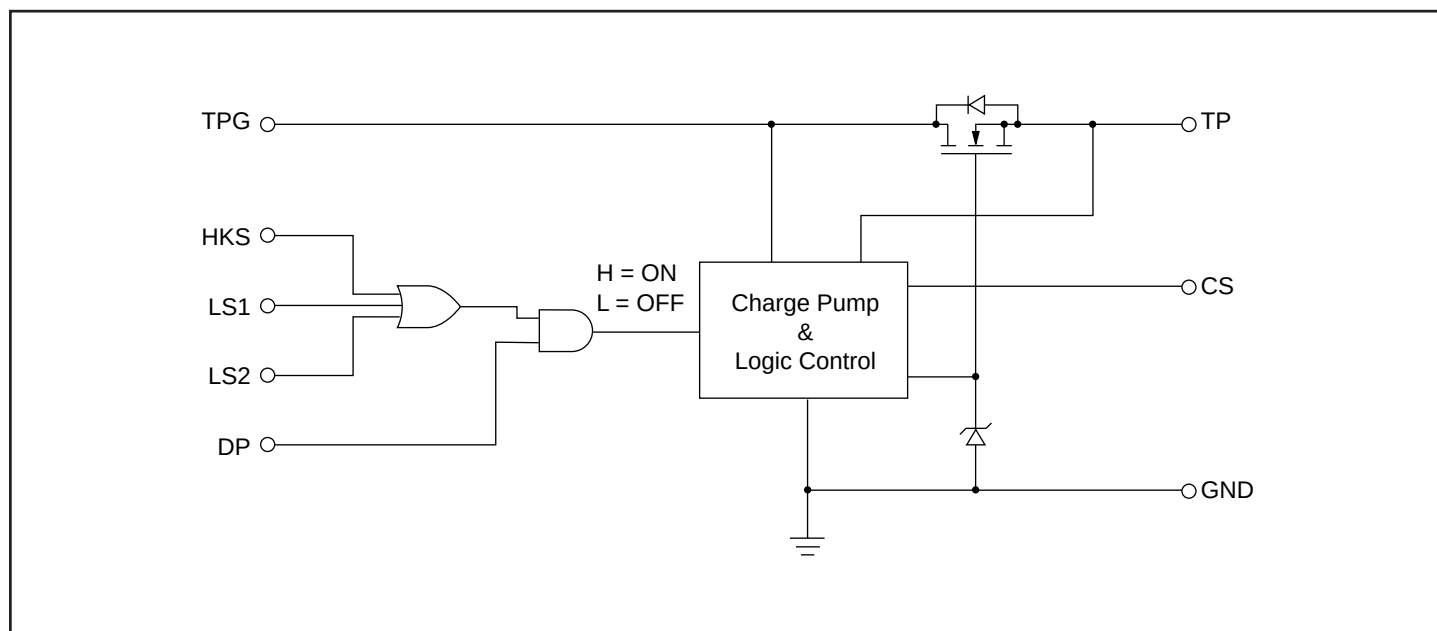
Notes: All voltages are referenced to ground.

*Distance of 1.6mm from case for 10 seconds.

Typical Performance Curve



Block Diagram



Electrical Characteristics

(over operating supply voltages unless otherwise specified, $T_A = -40^{\circ}\text{C}$ to $+85^{\circ}\text{C}$)

Symbol	Parameter	Min	Typ	Max	Unit	Conditions
V_{TPG}	High voltage positive supply			375	V	$I_{TP} = 10\mu\text{A}$, HKS, LS1, LS2, DP = open circuit
I_{TPQ}	Input leakage current			2.0	μA	$V_{TPG} = 100\text{V}$, HKS, LS1, LS2, DP = open circuit
				10		$V_{TPG} = 375\text{V}$, HKS, LS1, LS2, DP = open circuit
V_{TP}	Output voltage	16	18	20	V	$V_{TPG} = 50\text{V}$, No Load
R_{SW}	TPG to TP switch resistance			15	Ω	$V_{TPG}=4.3\text{V}$, $I_{TPG}=180\text{mA}$, SW= On
				15		$V_{TPG}=3.0\text{V}$, $I_{TPG}=20\text{mA}$, SW= On, $T_A=0^{\circ}\text{C}$ to 50°C
				30		$V_{TPG}=2.0\text{V}$, $I_{TPG}=5\text{mA}$, SW= On, $T_A=0^{\circ}\text{C}$ to 50°C
$I_{TPG}-I_{TP}$	Bias current			50	μA	$V_{TPG} = 5.0\text{V}$, SW = On
				100		$V_{TPG} = 10\text{V}$, SW = On
I_{LIM}	I_{TPG} current limiting	200		300	mA	$R_{EXT} = 430\Omega$
I_{HKS}	HKS input current			200	μA	$V_{HKS} = 50\text{V}$
I_{LS1}	LS1 input current			136	μA	$V_{LS1} = 3.0\text{V}$, $V_{DP} = 0\text{V}$
I_{LS2}	LS2 input current			136	μA	$V_{LS2} = 3.0\text{V}$, $V_{DP} = 0\text{V}$
I_{DP}	DP output current			500	μA	$V_{DP} = 0\text{V}$, $V_{HKS} = 50\text{V}$, $V_{LS1}=V_{LS2} = 3.0\text{V}$
$V_{IL(HKS)}$	HKS input low	0		0.2	V	
$V_{IH(HKS)}$	HKS input high	2.0		V_{TPG}	V	
$V_{IL(LS1)}$, $V_{IL(LS2)}$	LS1 and LS2 input low	0		0.2	V	
$V_{IH(LS1)}$, $V_{IH(LS2)}$	LS1 and LS2 input high	1.0		20	V	
$V_{IL(DP)}$	DP input low	0		0.2	V	
$V_{IH(DP)}$	DP input high	1.0		5.0	V	
T_{ON}	Turn on time			1.0	ms	$V_{TPG} = 4.5\text{V}$
T_{OFF}	Turn off time			1.0	ms	$V_{TPG} = 4.5\text{V}$

Truth Table

HKS	LS1	LS2	DP	Switch State
X	X	H	H or Z	ON
X	H	X	H or Z	ON
H	X	X	H or Z	ON
L or Z	L or Z	L or Z	X	OFF
X	X	X	L	OFF

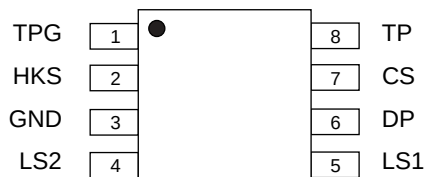
Z = high impedance, open circuit

X = don't care

L = logic level low

H = logic level high

Pin Configuration



top view

SO-8

Note: See Package Outline section for dimensions.

Pin Description

TPG	Positive input side of a telephone line, typically Tip side.
TP	Positive output side of a telephone line.
HKS	Hookswitch input. Connect HKS to TPG to turn on the electronic switch. Internally pulled low.
LS1	Line switch 1 input. Positive input turns on the electronic switch. Internally pulled low.
LS2	Line switch 2 input. Positive input turns on the electronic switch. Internally pulled low.
DP	Dial pulse input. A low input turns off the electronic switch. Use for pulse dialing. Internally pulled high.
CS	Current sense input. An external resistor connected between CS and TP sets the current limit. Short C _S to TP if current limiting is not used.
GND	Device ground. Negative side of a telephone line, typically Ring side.