DESCRIPTION

The A4775 is a low voltage, high performance single N-MOSFET power switch, designed for power rail on/off control with low $R_{DS(ON)}$≈70mΩ and full protection functions. The A4775 equipped with a charge pump circuitry to drive the internal MOSFET switch . In order to fit different application, an ISET pin is offered for current limit point setting, a resistor from ISET to ground sets the current limit for the switch.

Additional features include soft-start to limit inrush current during plug-in, thermal shutdown to prevent catastrophic switch failure from high-current loads, Output anti back irrigation Protection whether EN pin is connected GND or V_{IN}, under-voltage lockout (UVLO) to ensure that the device remains off unless there is a valid input voltage present, a precision resistor-programmable output current limit up to 3.5A. Besides, the lower quiescent current as 40μA making this device ideal for portable battery-operated equipment.

The A4775 is available in SOT-25 package.

ORDERING INFORMATION

Package Type	Part Number	
SOT-25	E5	A4775E5R
		A4775E5VR
Note	V: Halogen free Package R: Tape & Reel	
AiT provides all RoHS products Suffix " V " means Halogen free Package		

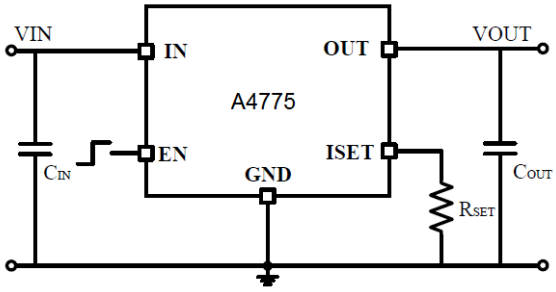
FEATURES

- Adjustable Current Limiting up to 3.5A
- Built-In (Typically 70mΩ) N-MOSFET
- Reverse Current Flow Blocking (no body diode)
- Output Can Be Forced Higher than Input (Off or On State)
- Low Supply Current :
  40μA Typical at Switch on State
  Less than 1μA Typical at Switch Off State
- Guaranteed Continuous Load Current : 2.1A
- Wide Input Voltage Ranges : 2V to 5.5V
- Hot Plug-In Application (Soft-Start)
- 1.7V Typical Under-Voltage Lockout (UVLO)
- Thermal Shutdown Protection
- Available in SOT-25 Package

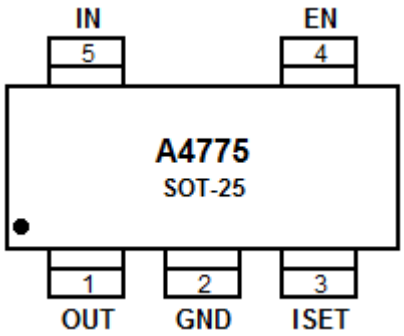
APPLICATION

- USB 3G Datacard
- USB Dongle
- MiniPCI Accessories
- LCD Monitor, LCD-TV
- USB Power Module for ADSL
- Information Appliance and Set-Top Box
- Battery-Powered Equipment
- Hot-Plug Power Supplies
- ACPI Power Distribution
- PCI Bus Power Switching
- Motherboard & Notebook PCs
- PC Card Hot Swap Application

TYPICAL APPLICATION



PIN DESCRIPTION



Top View

Pin #	Symbol	Function
1	OUT	Output Voltage.
2	GND	Ground.
3	ISET	Current Limit Programming Input.
4	EN	Chip Enable (Active High).
5	IN	Power Input Voltage.

ABSOLUTE MAXIMUM RATINGS

Supply Voltage		6.5V
Chip Enable Input Voltage		-0.3V~6.5V
P_D, Power Dissipation @ T_A = 25°C	SOT-25	0.6W
Package Thermal Resistance	SOT-25	200°C/W
Junction Temperature		125℃
Lead Temperature (Soldering, 10 sec.)		260°C
Storage Temperature Range		-65°C ~150°C
ESD Susceptibility		
HBM (Human Body Mode)		8kV
MM (Machine Mode)		800V

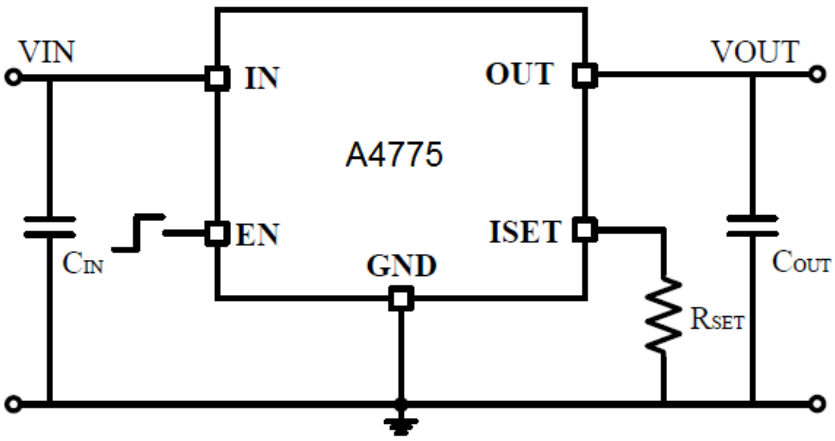
Stress beyond above listed “Absolute Maximum Ratings” may lead permanent damage to the device. These are stress ratings only and operations of the device at these or any other conditions beyond those indicated in the operational sections of the specifications are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

ELECTRICAL CHARACTERISTICS

V_S = +5V, V_{CM} = +2.5V, V_O = +2.5V, T_A = +25℃, unless otherwise noted.

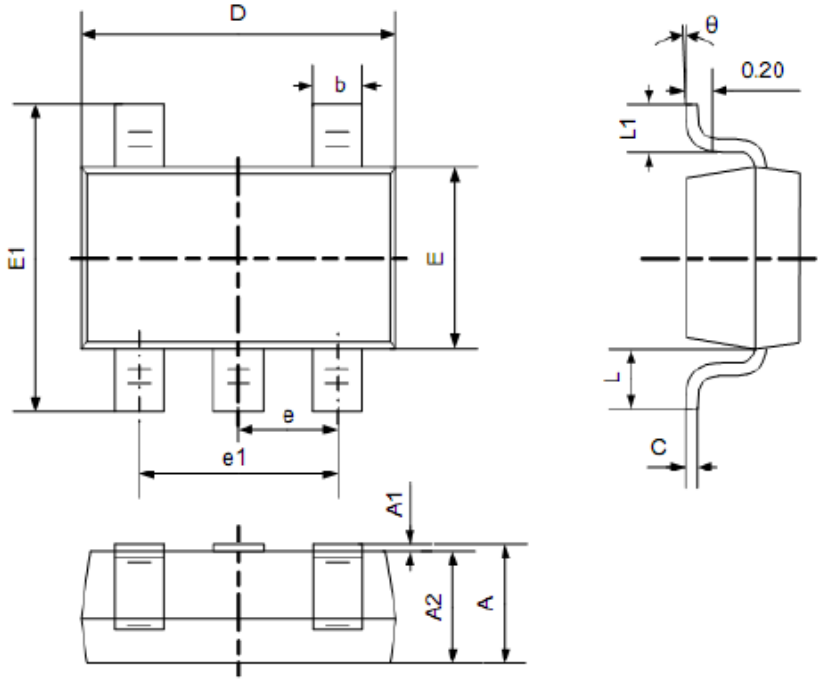
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Switch On Resistance	$R_{DS(ON)}$	I_{OUT} = 1A		70	80	mΩ
Supply Current	I_{SW_ON}	Switch On, V_{OUT} = Open		40	50	μA
Shutdown Current	I_{SW_OFF}	Switch Off, V_{OUT} = Open		0.1	1	μA
CE Threshold Logic-Low Voltage	V_{IL}	Switch Off			0.8	V
CE Threshold Logic-High Voltage	V_{IH}	Switch On	2.0			V
CE Input Current	I_{CE}	V_{CE} = 0V to 5.5V		10		pA
Output Leakage Current	$I_{LEAKAGE}$	V_{CE} = 0V, R_{LOAD} = 0Ω		0.5		μA
Output Turn-On Rise Time	T_{ON_RISE}	10% to 90% of V_{OUT} rising		1.5		ms
Current Limit Factor		I_{LIM} × R_{SET}		270k		A·Ω
Max. Current Limit Setting	I_{LIMSET}	V_{IN}=3.3V to 5.5V, R_{SET}=75kΩ			3.5	A
Current Limit Setting Accuracy	ΔI_{LIMSET}	I_{LIMSET} = 0.5A to 3A (R_{SET} = 540kΩ to 90kΩ)	-20		+20	%
Under-Voltage Lockout	V_{UVLO}	V_{IN} increasing	1.3	1.7		V
Under-Voltage Hysteresis	ΔV_{UVLO}	V_{IN} decreasing		0.1		V
Thermal Shutdown Protection	T_{SD}			120		℃
Thermal Shutdown Hysteresis	ΔT_{SD}			30		℃

TEST CIRCUIT



PACKAGE INFORMATION

Dimension in SOT-25 (Unit: mm)



Symbol	Min	Max
A	1.050	1.250
A1	0.000	0.100
A2	1.050	1.150
b	0.300	0.400
c	0.100	0.200
D	2.820	3.020
E	1.500	1.700
E1	2.650	2.950
e	0.950(TYP)	
e1	1.800	2.000
L	0.700(REF)	
L1	0.300	0.600
θ	0°	8°

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