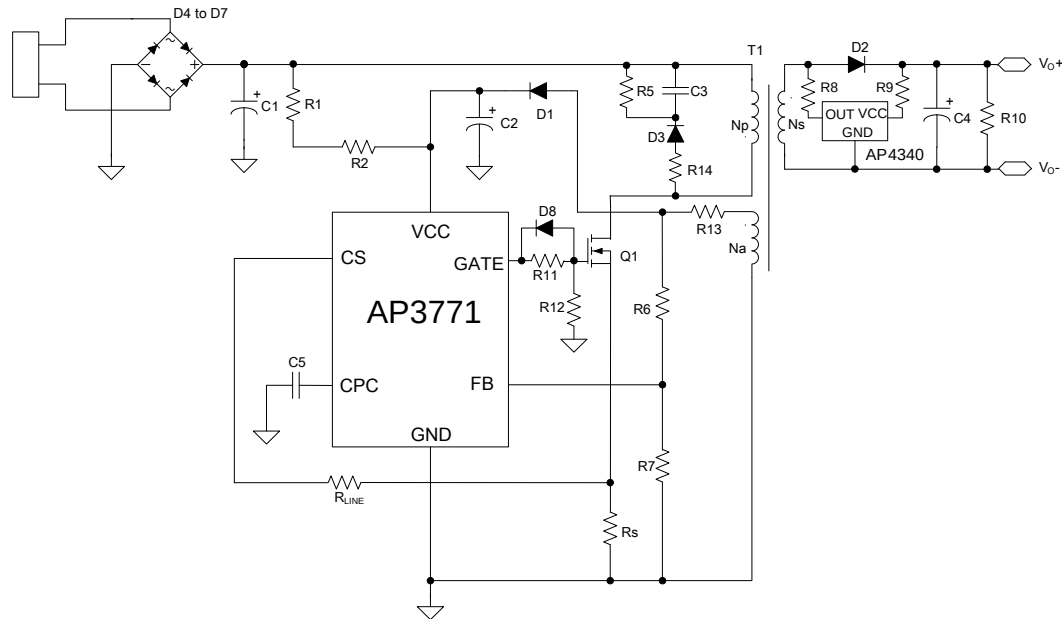
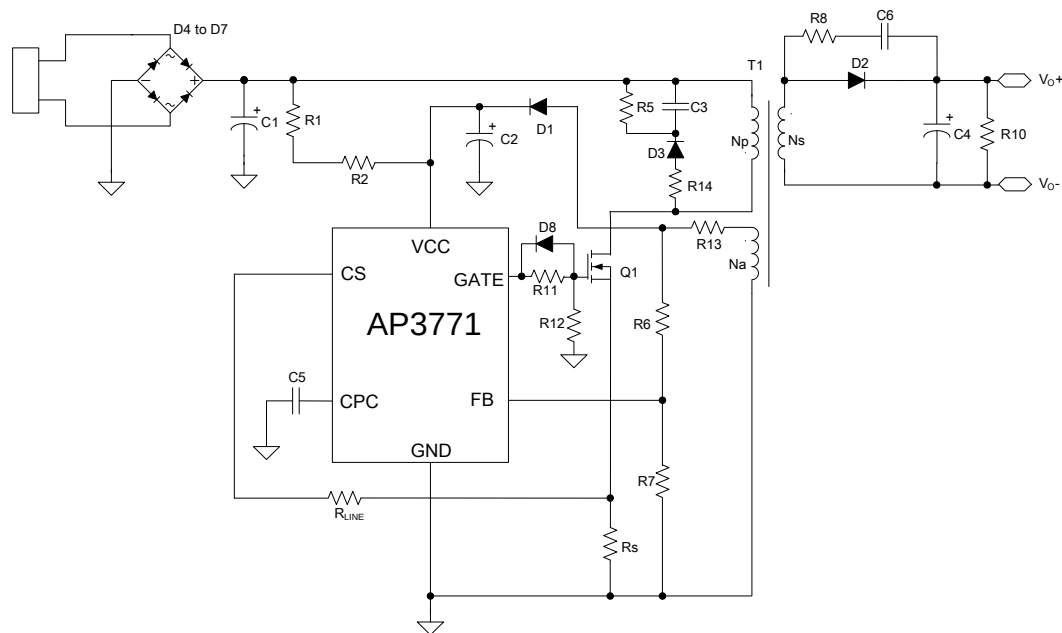


Typical Applications Circuit



5V/1.8A Output for Battery Charger of Tablet PC
(The AP4340 Is Used to Achieve Fast Dynamic Response)

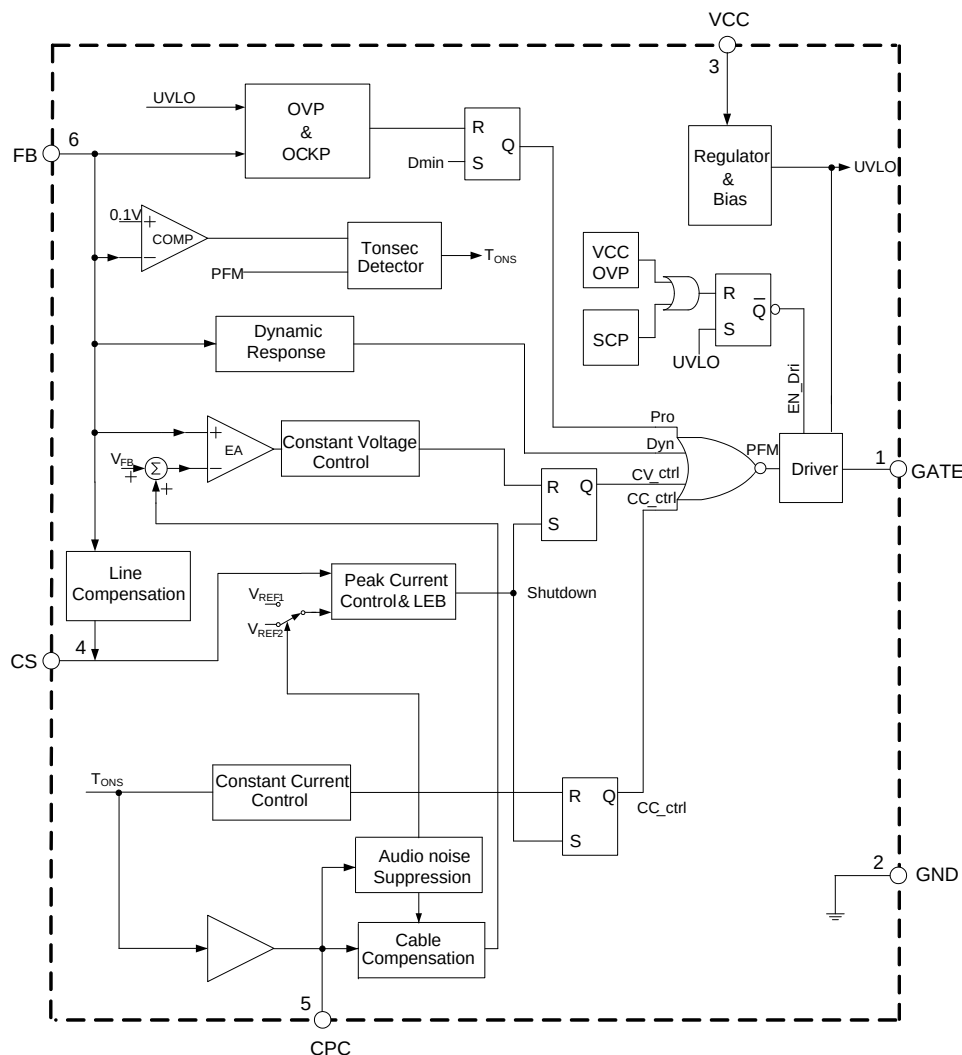


12V/1.5A Output for Adapter

Pin Descriptions

Pin Number	Pin Name	Function
1	GATE	The GATE pin is used to turn on and turn off the power switch. When turning on the power switch, the GATE pin will keep the gate voltage of the power MOSFET to 10V. When turning off the power switch, the resistance between the GATE and GND will become 40Ω
2	GND	The GND pin is the ground of the IC. When the power MOSFET is turned off, a fast reverse sinking current to the GATE of MOSFET will flow out from this pin. Attention should be paid to in the PCB layout
3	VCC	The VCC pin supplies the power for the IC. In order to get the correct operation of the IC, a capacitor with low ESR should be placed as close as possible to the VCC pin
4	CS	The CS is the current sense pin of the IC. The IC will turn off the power MOSFET according to the voltage on the CS pin. When the power MOSFET is on, a current is output from the CS pin which is proportional to the line voltage to realize the function of line compensation
5	CPC	A capacitor more than 50nF should be connected to this pin. The voltage of CPC pin is linear to load of the system and it is used for the functions of cable voltage drop compensation and audio noise suppression
6	FB	The CV and CC regulation are realized based on the voltage sampling of this pin

Functional Block Diagram



Absolute Maximum Ratings (Note 4)

Symbol	Parameter	Rating	Unit
V_{CC}	Supply Voltage	-0.3 to 30	V
—	CS, CPC to GND	-0.3 to 7	V
V_{FB}	FB Input Voltage	-40 to 10	V
—	Output Voltage at GATE	-0.3 to 15	V
T_J	Operating Junction Temperature	+150	°C
T_{STG}	Storage Temperature	-65 to +150	°C
T_{LEAD}	Lead Temperature (Soldering, 10 sec)	+300	°C
θ_{JA}	Thermal Resistance (Junction to Ambient)	200	°C/W

Note 4: Stresses greater than those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under "Recommended Operating Conditions" is not implied. Exposure to "Absolute Maximum Ratings" for extended periods may affect device reliability.

Electrical Characteristics ($V_{CC}=15V$, $T_A=+25^{\circ}C$, unless otherwise specified.)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
UVLO SECTION						
V _{TH} (ST)	Startup Voltage Threshold	–	13	15.5	18	V
V _{OPR} (MIN)	Minimal Operating Voltage	–	5.5	6.5	7.5	V
STANDBY CURRENT SECTION						
I _{ST}	Startup Current	V _{CC} =V _{TH} (ST)-1V, Before startup	0	0.2	0.6	μA
I _{CC} (OPR)	Operating Current	Static current	300	400	500	
DRIVE OUTPUT SECTION						
V _{GATE}	Gate Voltage	–	8	10	12	V
I _{SOURCE}	Source Current	V _{GATE} =0V	30	75	120	mA
R _{DS(ON)}	Sink Resistance	–	30	40	50	Ω
LINE COMPENSATION SECTION						
g _m	Line Compensation Transconductance (Note 5)	–	1.1	1.5	1.9	μS
CURRENT SENSE SECTION						
V _{CS}	Current Sense Threshold Voltage at Heavy Load (CV Mode) and CC Mode	–	480	510	540	mV
t _{LEB}	Leading Edge Blanking	–	300	475	800	ns
FEEDBACK INPUT SECTION						
V _{FB}	Feedback Threshold	–	3.94	4	4.06	V
I _{FB}	FB Input Leakage Current	V _{FB} =4V	2	3	4	μA
CABLE COMPENSATION SECTION						
ΔV _{FB-CABLE} /V _{FB} %	Cable Compensation Voltage	AP3771A	6	7	8	%
		AP3771B	2	3	4	%

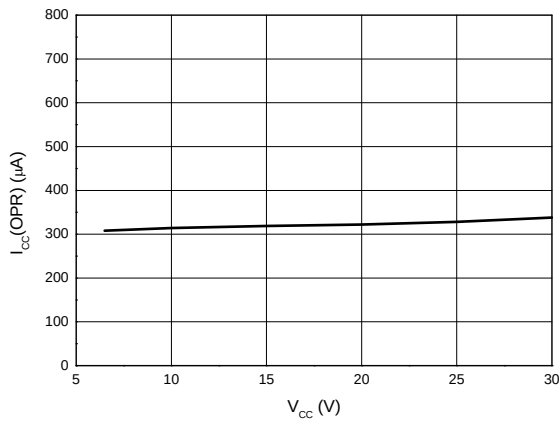
Electrical Characteristics (Cont.) ($V_{CC}=15V$, $T_A=+25^\circ C$, unless otherwise specified.)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
DYNAMIC FUNCTION SECTION						
t_D	Blanking Time for Dynamic Function	—	110	140	170	μs
$V_{TRIGGER}$	Trigger Voltage for Dynamic Function	—	115	150	185	mV
PROTECTION SECTION						
$V_{CC}(OVP)$	OVP of V_{CC}	—	25	27.5	30	V
$V_{FB}(OVP)$	OVP of V_{FB}	—	5.5	6.5	7.5	V
$V_{FB}(SCP)$	Short Circuit Protection	—	1.0	1.2	1.4	V
$t_{ONP}(MAX)$	Maximum t_{ONP}	—	24	35	46	μs
$t_{OFF}(MAX)$	Maximum Off Time	—	14	18	25	ms

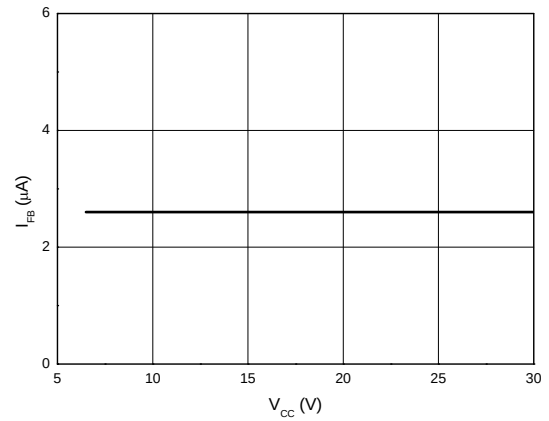
Note 5: Line compensation voltage on CS pin: $\Delta V_{CS} = V_{IN_DC} \cdot \frac{N_{AUX}}{N_{PRI}} \cdot \frac{R_7}{R_6 + R_7} \cdot g_m \cdot R_{LINE}$

Performance Characteristics

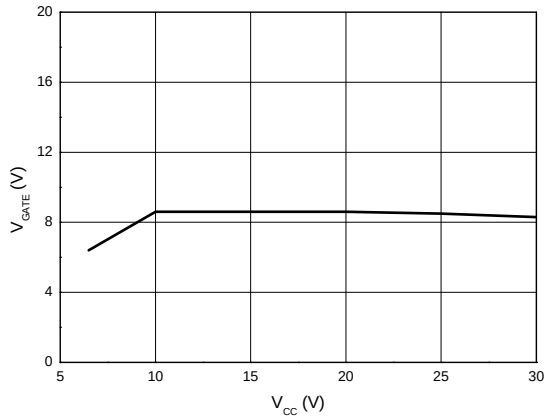
$I_{CC}(OPR)$ vs. V_{CC}



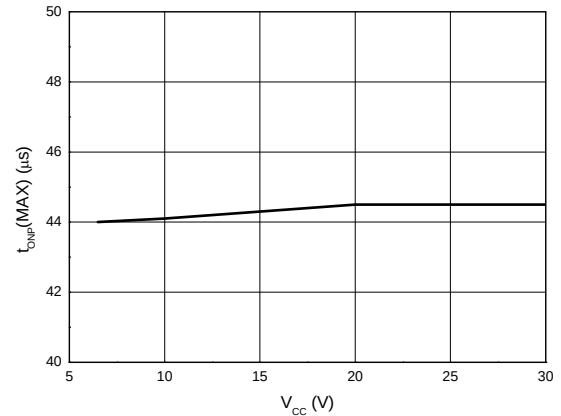
I_{FB} vs. V_{CC}



V_{GATE} vs. V_{CC}

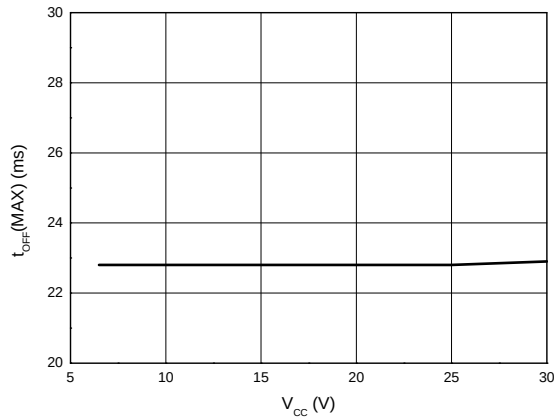


$t_{ONP}(MAX)$ vs. V_{CC}

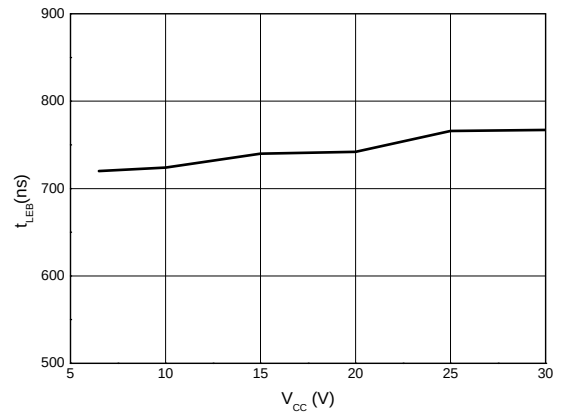


Performance Characteristics (Cont.)

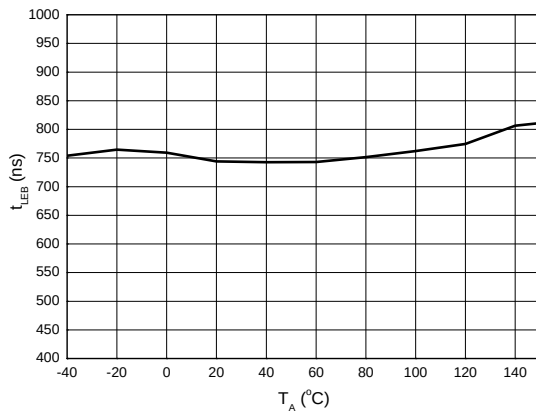
$t_{OFF}(MAX)$ vs. V_{CC}



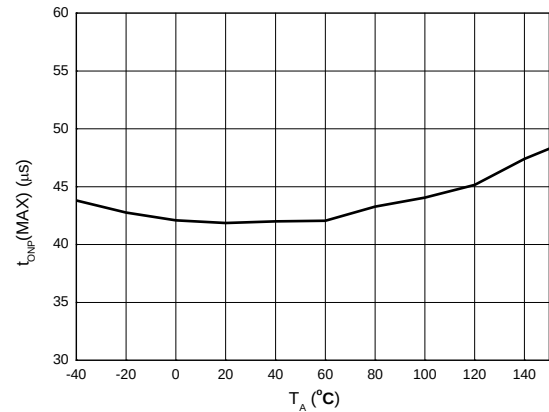
t_{LEB} vs. V_{CC}



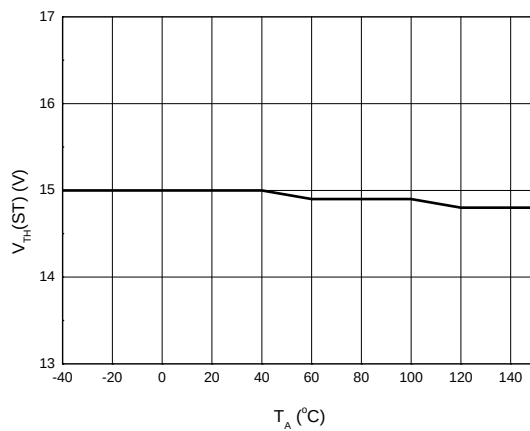
t_{LEB} vs. T_A



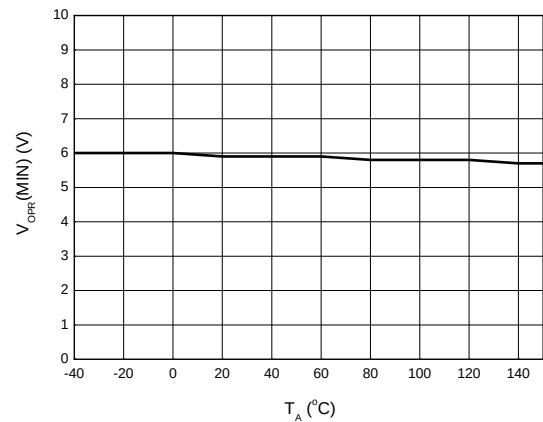
$t_{ONP}(MAX)$ vs. T_A



$V_{TH}(ST)$ vs. T_A

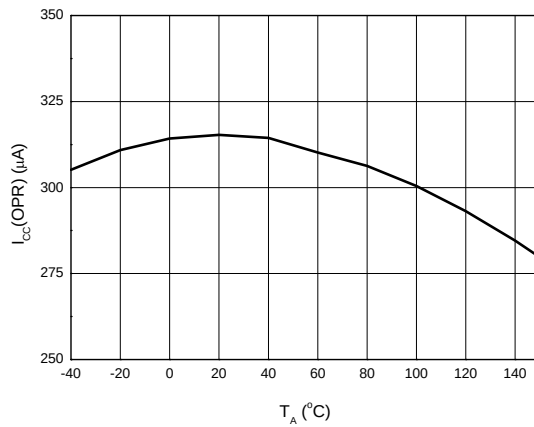


$V_{OPR}(MIN)$ vs. T_A

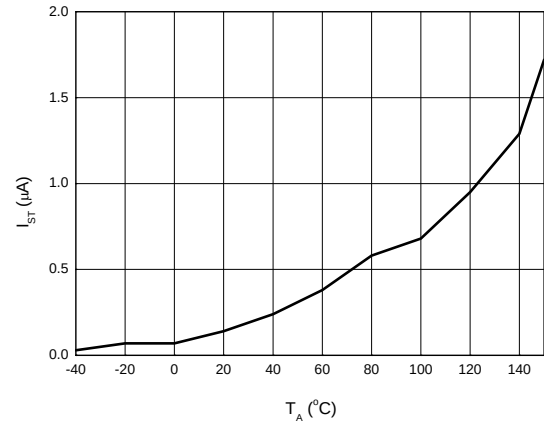


Performance Characteristics (Cont.)

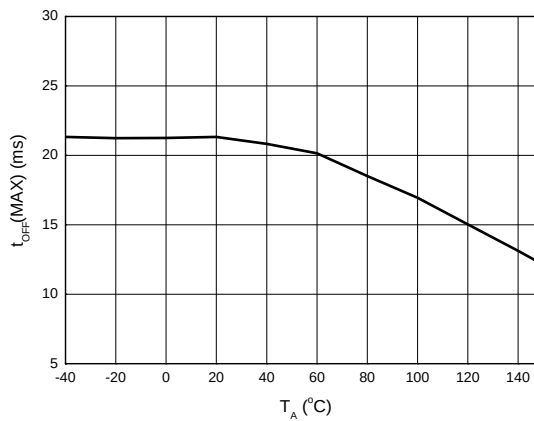
$I_{CC}(OPR)$ vs. T_A



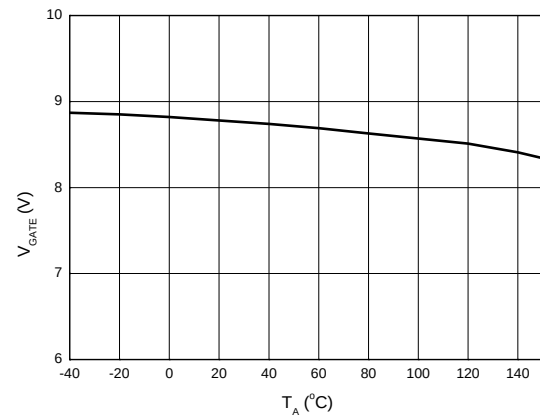
I_{ST} vs. T_A



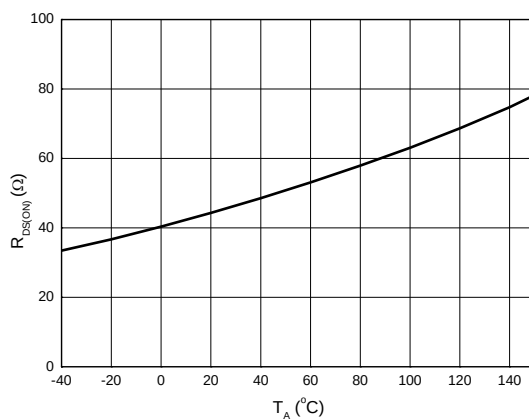
$t_{OFF}(MAX)$ vs. T_A



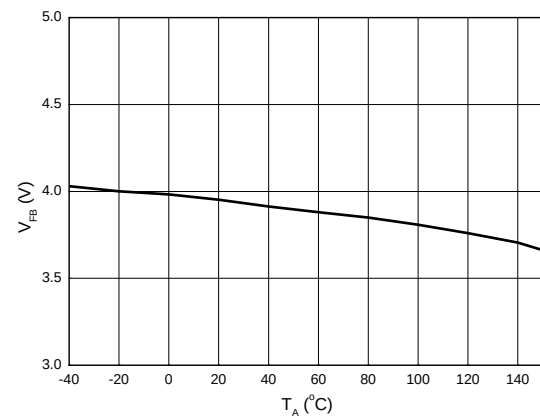
V_{GATE} vs. T_A



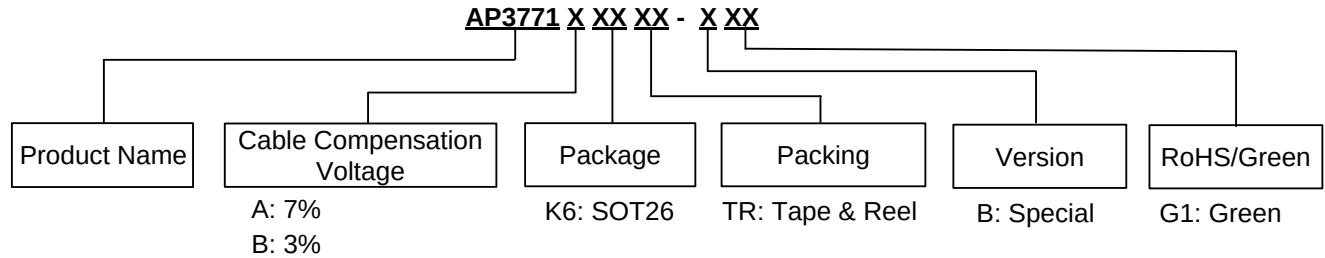
$R_{DS(ON)}$ vs. T_A



V_{FB} vs. T_A



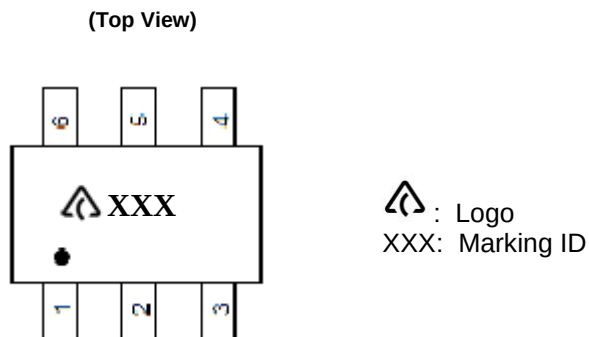
Ordering Information



Diodes IC's Pb-free products with "G1" suffix in the part number, are RoHS compliant and green.

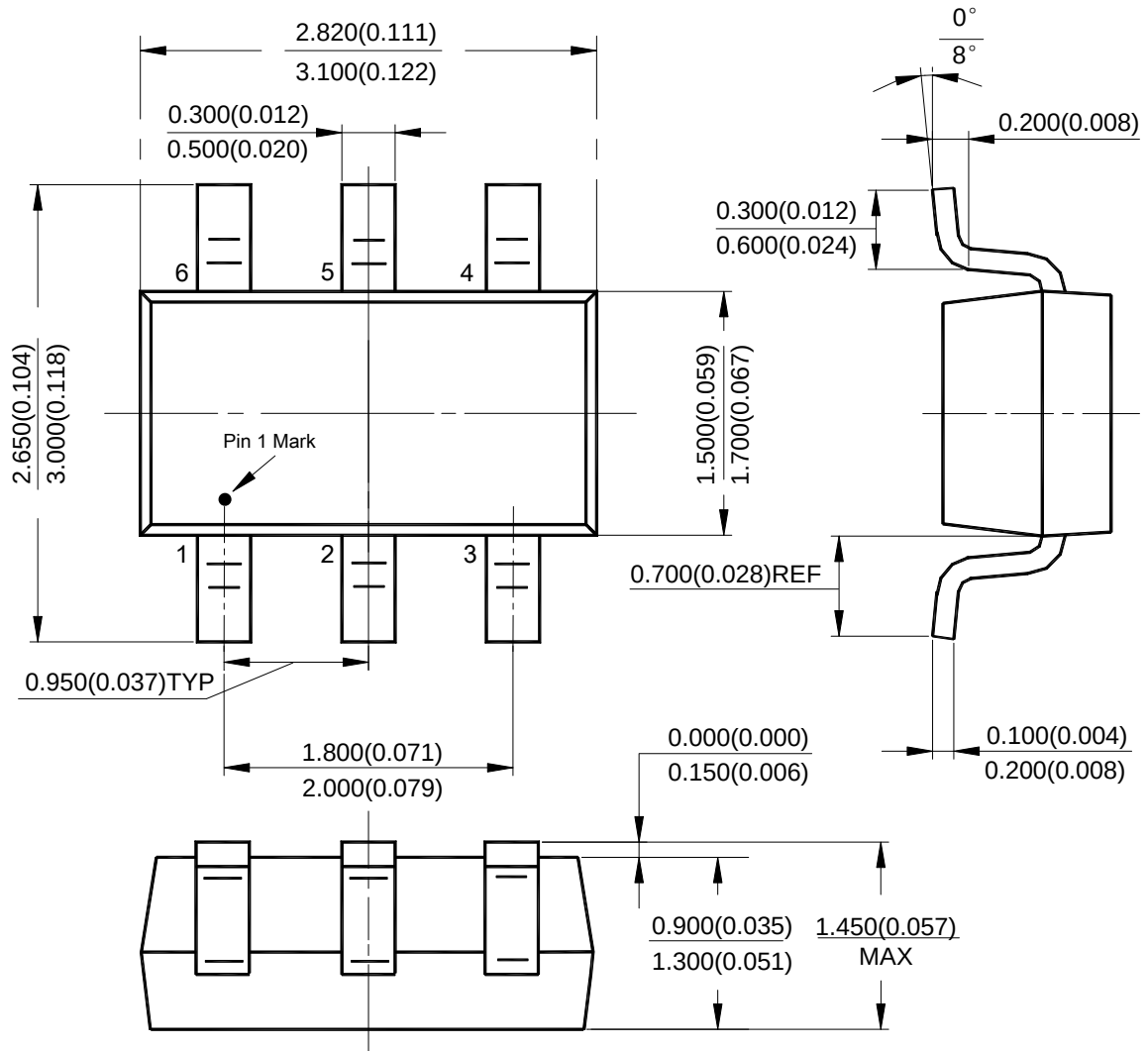
Package	Temperature Range	Cable Compensation Voltage	Part Number	Marking ID	Packing
SOT26	-40 to +85°C	7%	AP3771AK6TR-BG1	GJI	3000/Tape & Reel
		3%	AP3771BK6TR-BG1	GJJ	3000/Tape & Reel

Marking Information



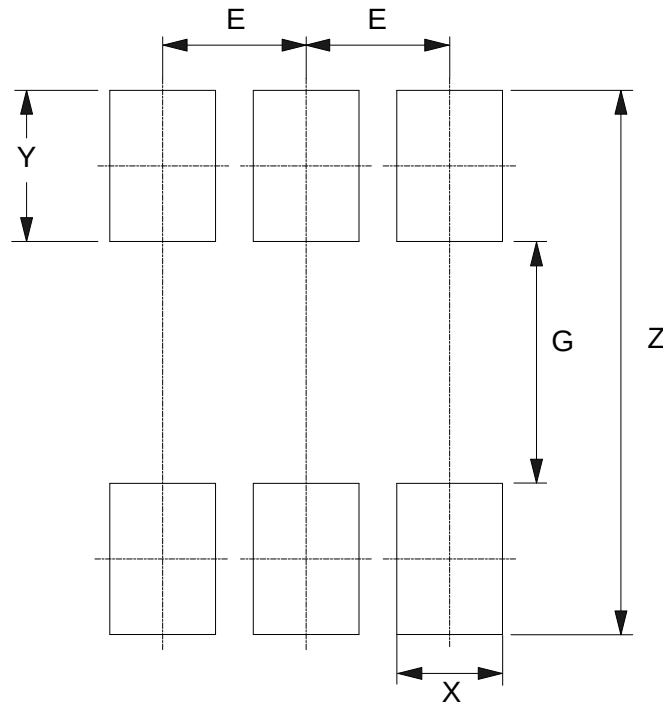
Package Outline Dimensions (All dimensions in mm(inch).)

(1) Package Type: SOT26



Suggested Pad Layout

(1) Package Type: SOT26



Dimensions	Z (mm)/(inch)	G (mm)/(inch)	X (mm)/(inch)	Y (mm)/(inch)	E (mm)/(inch)
Value	3.600/0.142	1.600/0.063	0.700/0.028	1.000/0.039	0.950/0.037

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