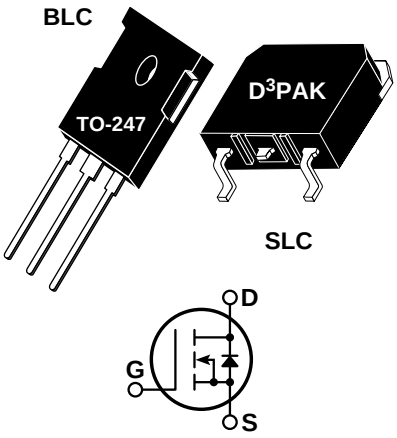
APT10086BLC
APT10086SLC
1000V 13A 0.860Ω

POWER MOS VI™



Power MOS VI™ is a new generation of low gate charge, high voltage N-Channel enhancement mode power MOSFETs. Lower gate charge is achieved by optimizing the manufacturing process to minimize C_{iss} and C_{rss}. Lower gate charge coupled with Power MOS VI™ optimized gate layout, delivers exceptionally fast switching speeds.

- **Identical Specifications: TO-247 or Surface Mount D³PAK Package**
- **Lower Gate Charge & Capacitance**
- **Easier To Drive**
- **100% Avalanche Tested**
- **Faster switching**

MAXIMUM RATINGS All Ratings: T_C = 25°C unless otherwise specified.

Symbol	Parameter	APT10086	UNIT
V_{DSS}	Drain-Source Voltage	1000	Volts
I_D	Continuous Drain Current @ T_C = 25°C	13	Amps
I_{DM}	Pulsed Drain Current ①	52	
V_{GS}	Gate-Source Voltage Continuous	±30	Volts
V_{GSM}	Gate-Source Voltage Transient	±40	
P_D	Total Power Dissipation @ T_C = 25°C	370	Watts
	Linear Derating Factor	2.96	W/°C
T_J,T_{STG}	Operating and Storage Junction Temperature Range	-55 to 150	°C
T_L	Lead Temperature: 0.063" from Case for 10 Sec.	300	
I_{AR}	Avalanche Current ① (Repetitive and Non-Repetitive)	13	Amps
E_{AR}	Repetitive Avalanche Energy ①	30	mJ
E_{AS}	Single Pulse Avalanche Energy ④	1300	

ADVANCED TECHNICAL INFORMATION

STATIC ELECTRICAL CHARACTERISTICS

Symbol	Characteristic / Test Conditions	MIN	TYP	MAX	UNIT
BV_{DSS}	Drain-Source Breakdown Voltage (V_{GS} = 0V, I_D = 250µA)	1000			Volts
$I_{D(on)}$	On State Drain Current ② (V_{DS} > $I_{D(on)}$ x $R_{DS(on)}$ Max, V_{GS} = 10V)	13			Amps
$R_{DS(on)}$	Drain-Source On-State Resistance ② (V_{GS} = 10V, 0.5 $I_{D[Cont.]}$)			0.860	Ohms
I_{DSS}	Zero Gate Voltage Drain Current (V_{DS} = V_{DSS}, V_{GS} = 0V)			25	µA
	Zero Gate Voltage Drain Current (V_{DS} = 0.8 V_{DSS}, V_{GS} = 0V, T_C = 125°C)			250	
I_{GSS}	Gate-Source Leakage Current (V_{GS} = ±30V, V_{DS} = 0V)			±100	nA
$V_{GS(th)}$	Gate Threshold Voltage (V_{DS} = V_{GS}, I_D = 1mA)	3		5	Volts

CAUTION: These Devices are Sensitive to Electrostatic Discharge. Proper Handling Procedures Should Be Followed.

APT Website - http://www.advancedpower.com

USA 405 S.W. Columbia Street Bend, Oregon 97702-1035 Phone: (541) 382-8028 FAX: (541) 388-0364

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050-5920 Rev - 11-99

DYNAMIC CHARACTERISTICS

APT10086 BLC - SLC

Symbol	Characteristic	Test Conditions	MIN	TYP	MAX	UNIT
C_{iss}	Input Capacitance	V_{GS} = 0V V_{DS} = 25V f = 1 MHz		2800		pF
C_{oss}	Output Capacitance			350		
C_{rss}	Reverse Transfer Capacitance			120		
Q_g	Total Gate Charge ③	V_{GS} = 10V V_{DD} = 0.5 V_{DSS} I_D = $I_{D[Cont.]}$ @ 25°C		95		nC
Q_{gs}	Gate-Source Charge			17		
Q_{gd}	Gate-Drain ("Miller") Charge			52		
$t_{d(on)}$	Turn-on Delay Time	V_{GS} = 15V V_{DD} = 0.5 V_{DSS} I_D = $I_{D[Cont.]}$ @ 25°C R_G = 1.6Ω		14		ns
t_r	Rise Time			10		
$t_{d(off)}$	Turn-off Delay Time			31		
t_f	Fall Time			11		

ADVANCED TECHNICAL INFORMATION

SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS

Symbol	Characteristic / Test Conditions	MIN	TYP	MAX	UNIT
I_S	Continuous Source Current (Body Diode)			13	Amps
I_{SM}	Pulsed Source Current ① (Body Diode)			52	
V_{SD}	Diode Forward Voltage ② (V_{GS} = 0V, I_S = -$I_{D[Cont.]}$)			1.3	Volts
t_{rr}	Reverse Recovery Time (I_S = -$I_{D[Cont.]}$, dI_S/dt = 100A/µs)		800		ns
Q_{rr}	Reverse Recovery Charge (I_S = -$I_{D[Cont.]}$, dI_S/dt = 100A/µs)		11.0		µC

THERMAL CHARACTERISTICS

Symbol	Characteristic	MIN	TYP	MAX	UNIT
$R_{\theta JC}$	Junction to Case			0.34	°C/W
$R_{\theta JA}$	Junction to Ambient			40	

① Repetitive Rating: Pulse width limited by maximum junction temperature.

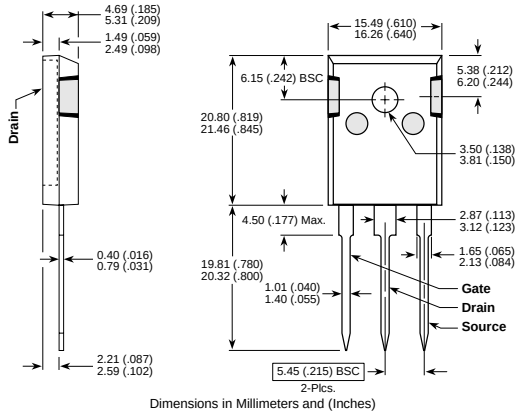
② Pulse Test: Pulse width < 380 µS, Duty Cycle < 2%

③ See MIL-STD-750 Method 3471

④ Starting T_j = +25°C, L =15.38mH, R_G = 25Ω, Peak I_L = 13A

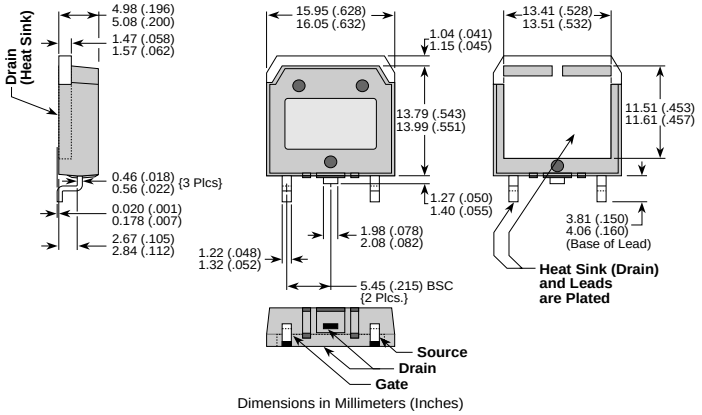
APT Reserves the right to change, without notice, the specifications and information contained herein.

TO-247 Package Outline



Dimensions in Millimeters and (Inches)

D³PAK Package Outline



Dimensions in Millimeters (Inches)

APT's devices are covered by one or more of the following U.S.patents: 4,895,810 5,045,903 5,089,434 5,182,234 5,019,522 5,262,336 5,256,583 4,748,103 5,283,202 5,231,474 5,434,095 5,528,058