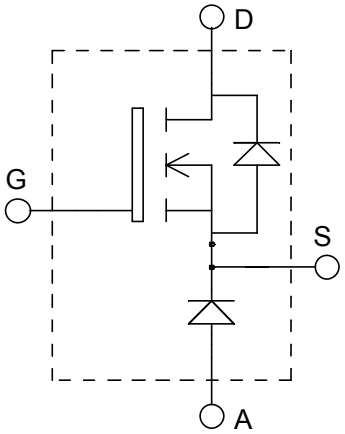
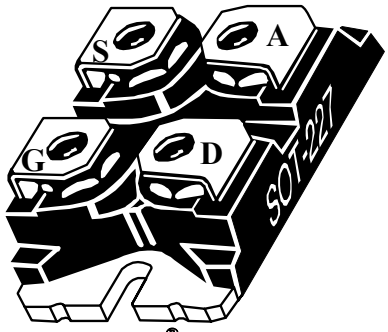
APT5010JLLU3

ISOTOP® Buck chopper MOSFET Power Module

V_{DSS} = 500V
R_{DSon} = 100mΩ max @ Tj = 25°C
I_D = 41A @ Tc = 25°C





ISOTOP®

Application

- AC and DC motor control
- Switched Mode Power Supplies

Features

- Power MOS 7® MOSFETs
  - Low R_{DSon}
  - Low input and Miller capacitance
  - Low gate charge
  - Fast intrinsic reverse diode
  - Avalanche energy rated
  - Very rugged
- ISOTOP® Package (SOT-227)
- Very low stray inductance
- High level of integration

Benefits

- Outstanding performance at high frequency operation
- Direct mounting to heatsink (isolated package)
- Low junction to case thermal resistance
- Very rugged
- Low profile

Absolute maximum ratings

Symbol	*Parameter*			*Max ratings*	*Unit*
V_{DSS}	Drain - Source Breakdown Voltage			500	V
I_D	Continuous Drain Current		T_c = 25°C	41	A
			T_c = 80°C	30	
I_{DM}	Pulsed Drain current			164	
V_{GS}	Gate - Source Voltage			±30	V
R_{DSon}	Drain - Source ON Resistance			100	mΩ
P_D	Maximum Power Dissipation		T_c = 25°C	378	W
I_{AR}	Avalanche current (repetitive and non repetitive)			41	A
E_{AR}	Repetitive Avalanche Energy			50	mJ
E_{AS}	Single Pulse Avalanche Energy			1600	
IF_{AV}	Maximum Average Forward Current	Duty cycle=0.5	Tc = 80°C	30	A
IF_{RMS}	RMS Forward Current (Square wave, 50% duty)			39	

CAUTION: These Devices are sensitive to Electrostatic Discharge. Proper Handing Procedures Should Be Followed.

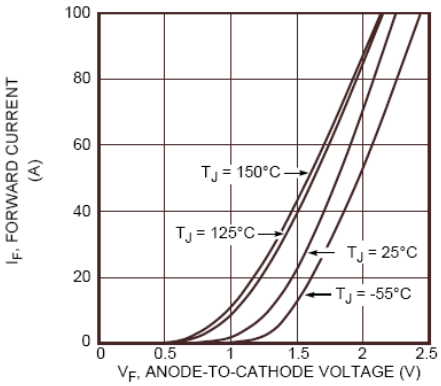


Figure 2. Forward Current *vs.* Forward Voltage

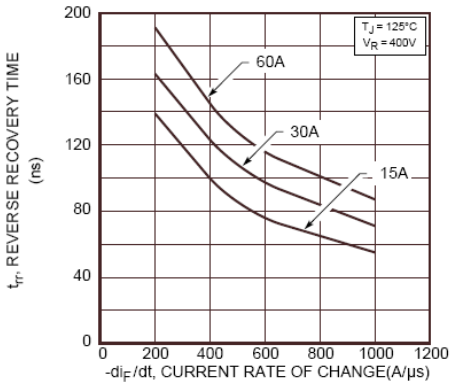


Figure 3. Reverse Recovery Time *vs.* Current Rate of Change

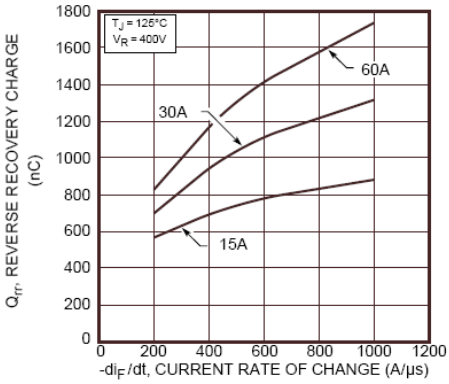


Figure 4. Reverse Recovery Charge *vs.* Current Rate of Change

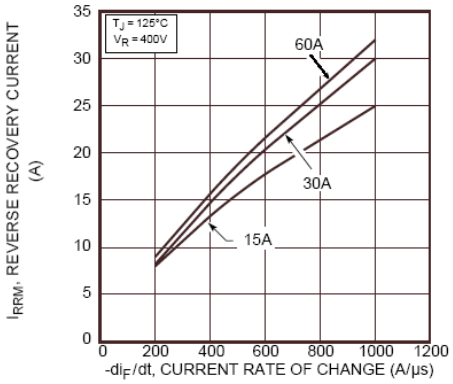


Figure 5. Reverse Recovery Current *vs.* Current Rate of Change

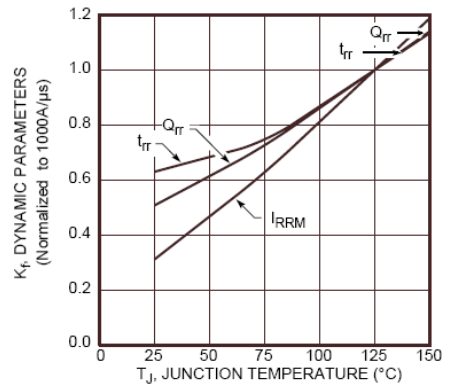


Figure 6. Dynamic Parameters *vs.* Junction Temperature

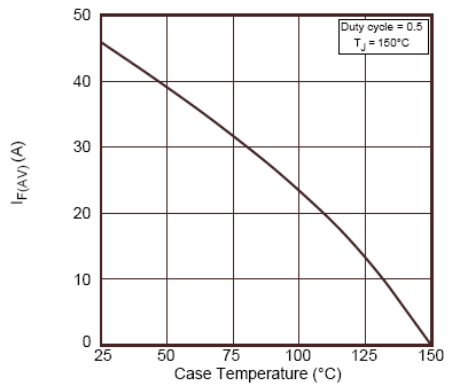


Figure 7. Maximum Average Forward Current *vs.* CaseTemperature

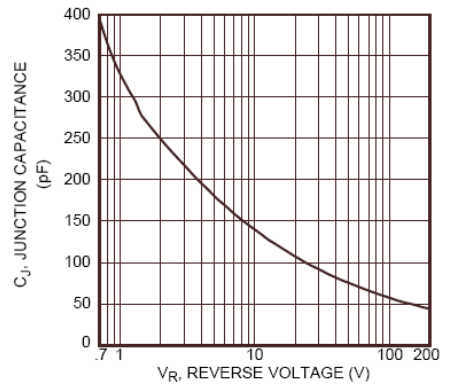


Figure 8. Junction Capacitance *vs.* Reverse Voltage

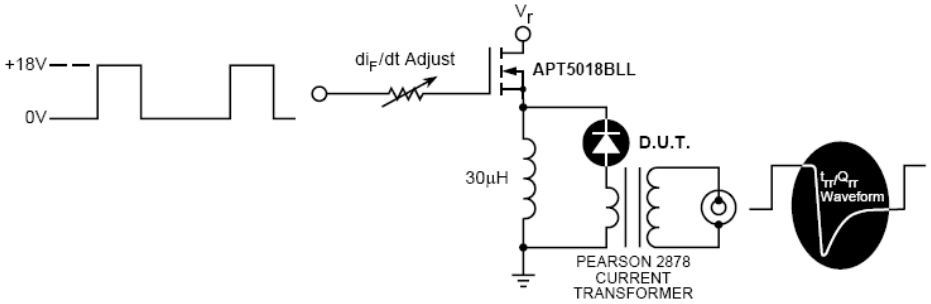
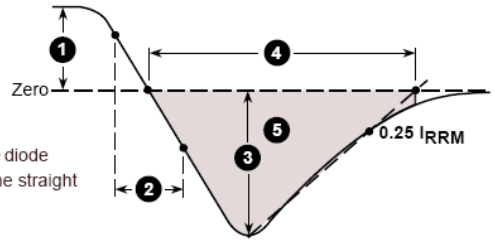


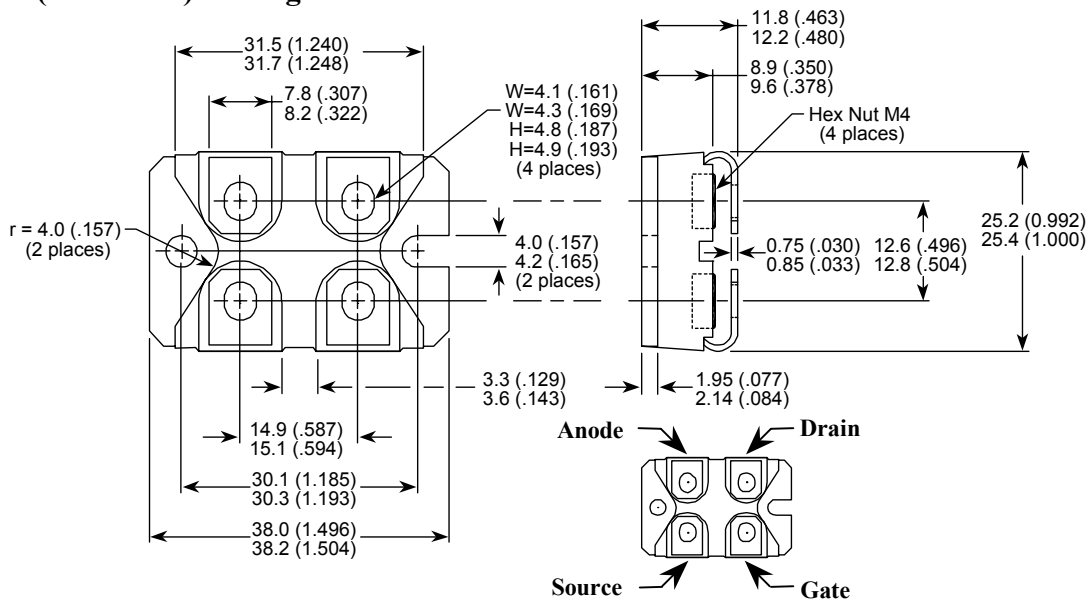
Figure 9. Diode Test Circuit



1. I_F - Forward Conduction Current
2. di_F/dt - Rate of Diode Current Change Through Zero Crossing.
3. I_{RRM} - Maximum Reverse Recovery Current.
4. t_{rr} - Reverse Recovery Time, measured from zero crossing where diode current goes from positive to negative, to the point at which the straight line through I_{RRM} and $0.25 \bullet I_{RRM}$ passes through zero.
5. Q_{rr} - Area Under the Curve Defined by I_{RRM} and t_{rr}.

Figure 10, Diode Reverse Recovery Waveform and Definitions

SOT-227 (ISOTOP®) Package Outline



Dimensions in Millimeters and (Inches)

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

APT's products are covered by one or more of U.S patents 4,895,810 5,045,903 5,089,434 5,182,234 5,019,522 5,262,336 6,503,786 5,256,583 4,748,103 5,283,202 5,231,474 5,434,095 5,528,058 and foreign patents. U.S and Foreign patents pending. All Rights Reserved.