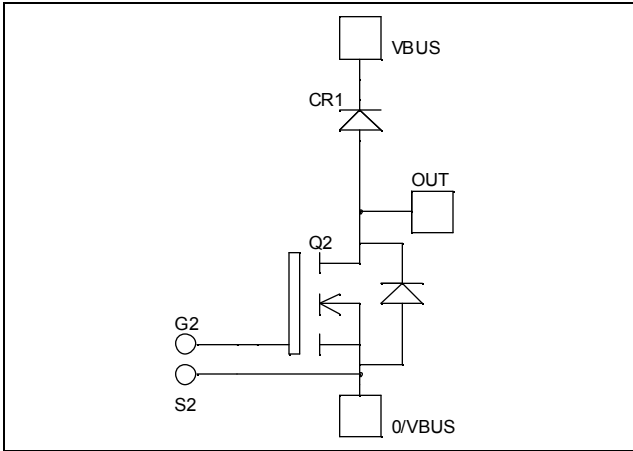


***Boost chopper  
MOSFET Power Module***

**$V_{DSS} = 1200V$   
 $R_{DSon} = 150m\Omega \text{ max @ } T_j = 25^\circ C$   
 $I_D = 60A \text{ @ } T_c = 25^\circ C$**



**Application**

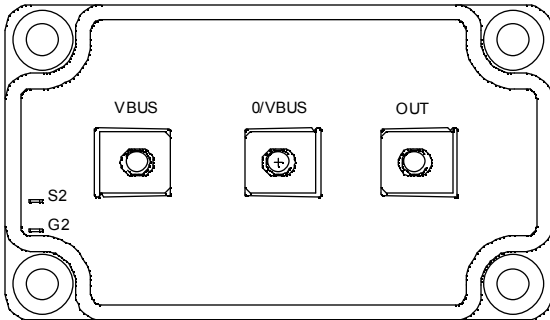
- AC and DC motor control
- Switched Mode Power Supplies
- Power Factor Correction

**Features**

- Power MOS 7<sup>®</sup> MOSFETs
  - Low  $R_{DSon}$
  - Low input and Miller capacitance
  - Low gate charge
  - Avalanche energy rated
  - Very rugged
- Kelvin source for easy drive
- Very low stray inductance
  - Symmetrical design
  - M5 power connectors
- High level of integration

**Benefits**

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



**Absolute maximum ratings**

<i>Symbol</i>	<i>Parameter</i>	<i>Max ratings</i>	<i>Unit</i>
$V_{DSS}$	Drain - Source Breakdown Voltage	1200	V
$I_D$	Continuous Drain Current	$T_c = 25^\circ C$	60
		$T_c = 80^\circ C$	45
$I_{DM}$	Pulsed Drain current	240	
$V_{GS}$	Gate - Source Voltage	$\pm 30$	V
$R_{DSon}$	Drain - Source ON Resistance	150	m $\Omega$
$P_D$	Maximum Power Dissipation	$T_c = 25^\circ C$	1250
$I_{AR}$	Avalanche current (repetitive and non repetitive)	22	A
$E_{AR}$	Repetitive Avalanche Energy	50	mJ
$E_{AS}$	Single Pulse Avalanche Energy	3000	

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

All ratings @  $T_j = 25^\circ\text{C}$  unless otherwise specified

## Electrical Characteristics

Symbol	Characteristic	Test Conditions	Min	Typ	Max	Unit
$BV_{DSS}$	Drain - Source Breakdown Voltage	$V_{GS} = 0V, I_D = 1mA$	1200			V
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{GS} = 0V, V_{DS} = 1200V$   $T_j = 25^\circ\text{C}$			400	$\mu\text{A}$
		$V_{GS} = 0V, V_{DS} = 1000V$   $T_j = 125^\circ\text{C}$			2000	
$R_{DS(on)}$	Drain - Source on Resistance	$V_{GS} = 10V, I_D = 30A$			150	$\text{m}\Omega$
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS} = V_{DS}, I_D = 10mA$	3		5	V
$I_{GSS}$	Gate - Source Leakage Current	$V_{GS} = \pm 30V, V_{DS} = 0V$			$\pm 250$	nA

## Dynamic Characteristics

Symbol	Characteristic	Test Conditions	Min	Typ	Max	Unit
$C_{iss}$	Input Capacitance	$V_{GS} = 0V$ $V_{DS} = 25V$ $f = 1MHz$		20.6		nF
$C_{oss}$	Output Capacitance			3.08		
$C_{rss}$	Reverse Transfer Capacitance			0.52		
$Q_g$	Total gate Charge	$V_{GS} = 10V$ $V_{Bus} = 600V$ $I_D = 60A$		748		nC
$Q_{gs}$	Gate - Source Charge			96		
$Q_{gd}$	Gate - Drain Charge			480		
$T_{d(on)}$	Turn-on Delay Time	<b>Inductive switching @ <math>125^\circ\text{C}</math></b> $V_{GS} = 15V$ $V_{Bus} = 800V$ $I_D = 60A$ $R_G = 1.2\Omega$		20		ns
$T_r$	Rise Time			15		
$T_{d(off)}$	Turn-off Delay Time			160		
$T_f$	Fall Time			45		
$E_{on}$	Turn-on Switching Energy ❶	<b>Inductive switching @ <math>25^\circ\text{C}</math></b> $V_{GS} = 15V, V_{Bus} = 800V$ $I_D = 60A, R_G = 1.2\Omega$		3.96		mJ
$E_{off}$	Turn-off Switching Energy ❷			2.74		
$E_{on}$	Turn-on Switching Energy ❶	<b>Inductive switching @ <math>125^\circ\text{C}</math></b> $V_{GS} = 15V, V_{Bus} = 800V$ $I_D = 60A, R_G = 1.2\Omega$		6.26		mJ
$E_{off}$	Turn-off Switching Energy ❷			3.43		

## Diode ratings and characteristics

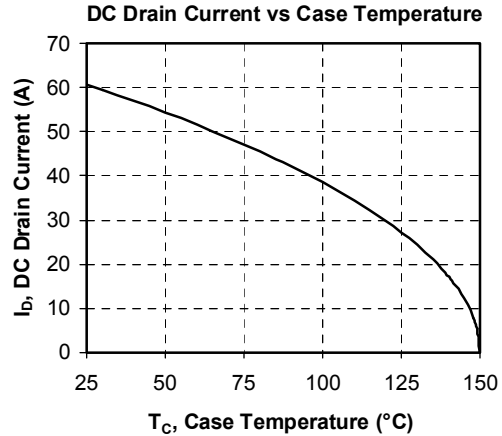
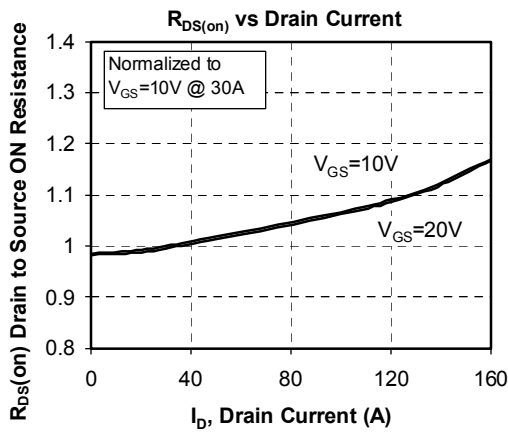
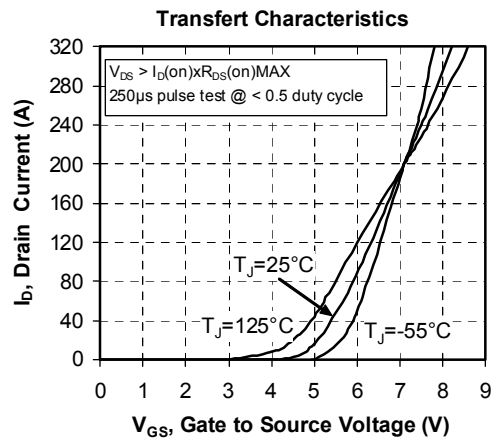
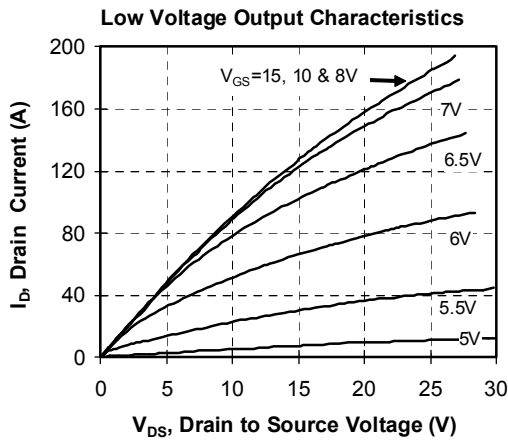
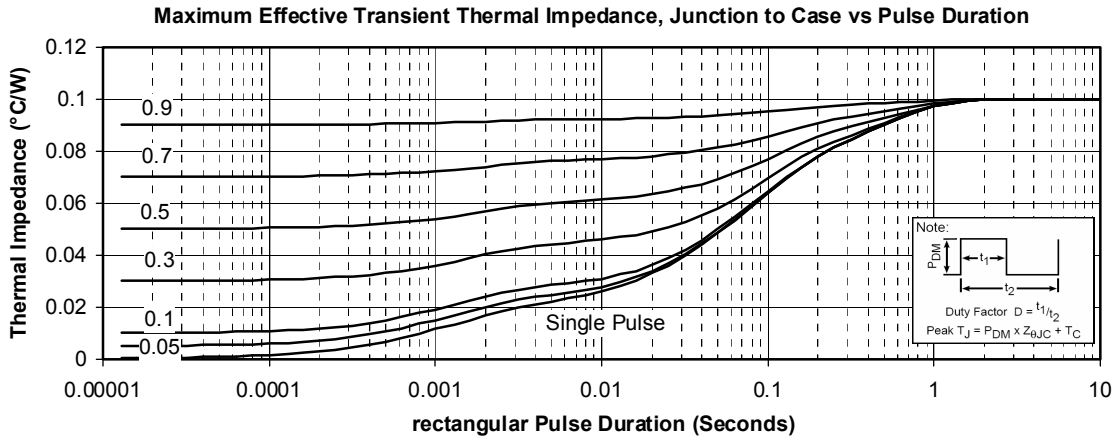
Symbol	Characteristic	Test Conditions	Min	Typ	Max	Unit
$I_{F(AV)}$	Maximum Average Forward Current	50% duty cycle   $T_c = 70^\circ\text{C}$		60		A
$V_F$	Diode Forward Voltage	$I_F = 60A$		2	2.5	V
		$I_F = 120A$		2.3		
		$I_F = 60A$   $T_j = 125^\circ\text{C}$		1.8		
$t_{rr}$	Reverse Recovery Time	$I_F = 60A$ $V_R = 800V$ $di/dt = 200A/\mu\text{s}$   $T_j = 25^\circ\text{C}$		400		ns
		$T_j = 125^\circ\text{C}$		470		
$Q_{rr}$	Reverse Recovery Charge	$I_F = 60A$ $V_R = 800V$ $di/dt = 200A/\mu\text{s}$   $T_j = 25^\circ\text{C}$		1200		nC
		$T_j = 125^\circ\text{C}$		4000		

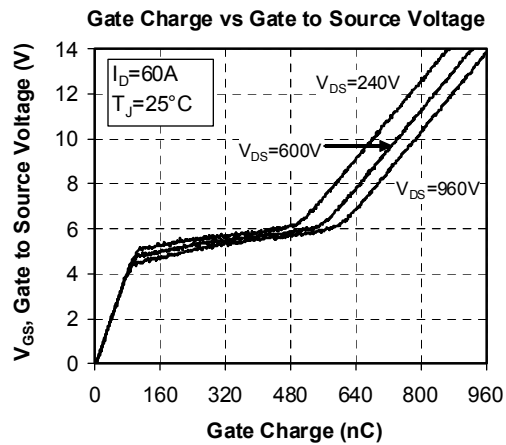
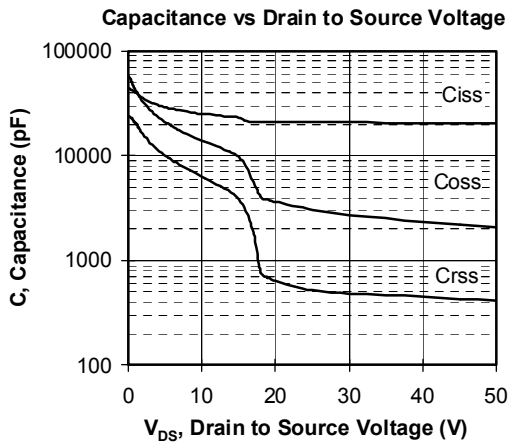
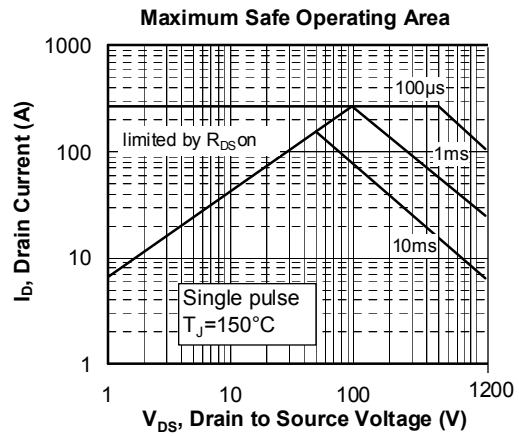
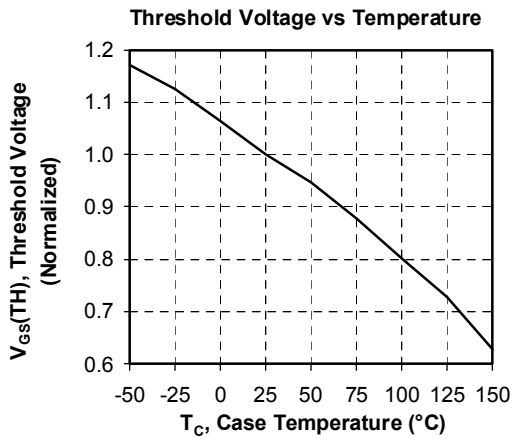
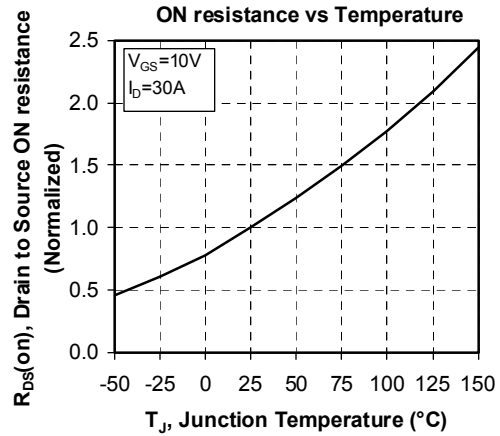
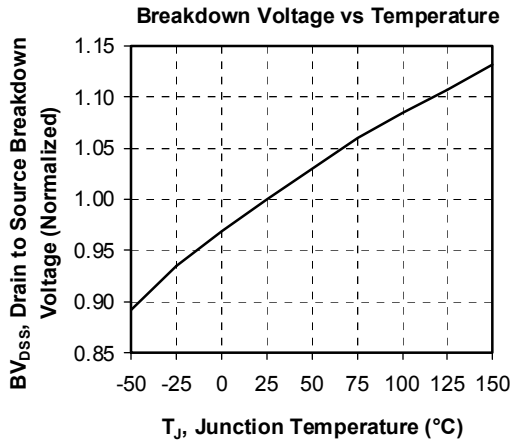
❶  $E_{on}$  includes diode reverse recovery.

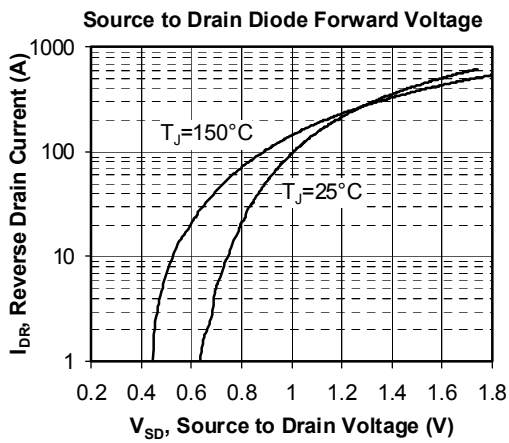
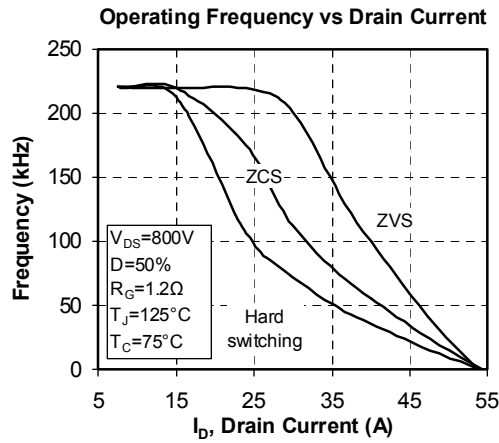
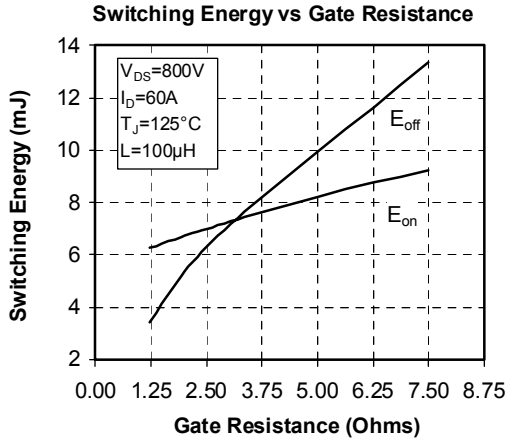
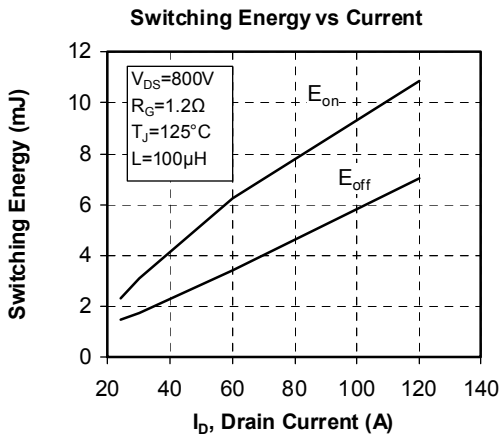
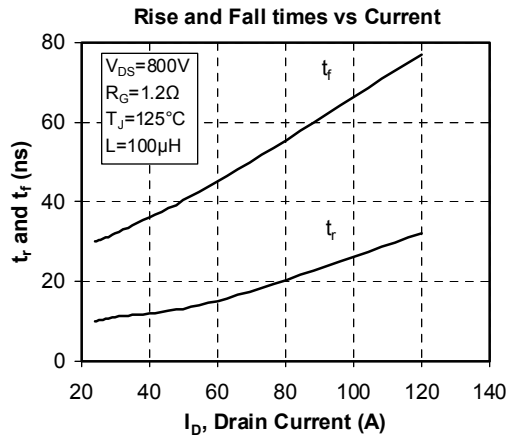
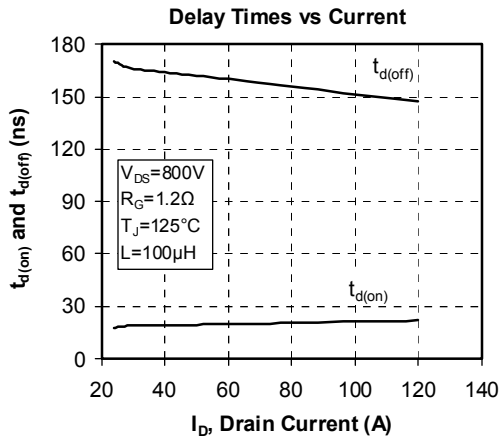
❷ In accordance with JEDEC standard JESD24-1.



**Typical Performance Curve**







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.