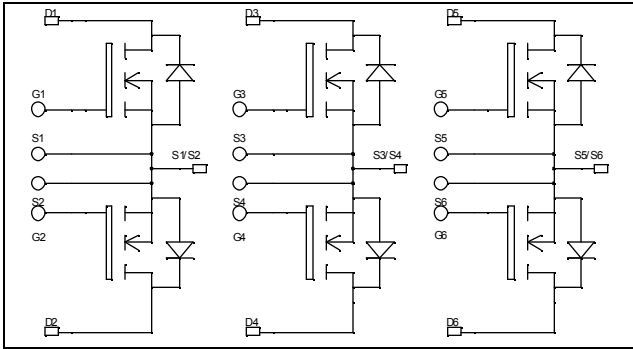


**Triple dual common source  
MOSFET Power Module**

**$V_{DSS} = 100V$   
 $R_{DSon} = 19m\Omega \text{ max @ } T_j = 25^\circ C$   
 $I_D = 70A \text{ @ } T_c = 25^\circ C$**

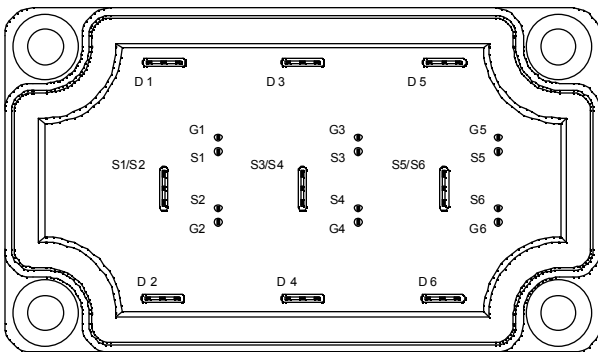


**Application**

- AC Switches
- Switched Mode Power Supplies
- Uninterruptible Power Supplies

**Features**

- Power MOS V<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
  - Lead frames for power connections
- High level of integration



**Benefits**

- Outstanding performance at high frequency operation
- Direct mounting to heatsink (isolated package)
- Low junction to case thermal resistance
- Solderable terminals both for power and signal for easy PCB mounting
- Very low (12mm) profile
- Each leg can be easily paralleled to achieve a dual common source configuration of three times the current capability

**Absolute maximum ratings**

Symbol	Parameter	Max ratings	Unit
$V_{DSS}$	Drain - Source Breakdown Voltage	100	V
$I_D$	Continuous Drain Current	$T_c = 25^\circ C$	70
		$T_c = 80^\circ C$	50
$I_{DM}$	Pulsed Drain current	220	A
$V_{GS}$	Gate - Source Voltage	$\pm 30$	V
$R_{DSon}$	Drain - Source ON Resistance	19	$m\Omega$
$P_D$	Maximum Power Dissipation	$T_c = 25^\circ C$	208
$I_{AR}$	Avalanche current (repetitive and non repetitive)	75	A
$E_{AR}$	Repetitive Avalanche Energy	50	mJ
$E_{AS}$	Single Pulse Avalanche Energy	1500	

**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	$V_{GS} = 0V, I_D = 250\mu A$	100			V
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{GS} = 0V, V_{DS} = 100V, T_j = 25^\circ\text{C}$			250	$\mu A$
		$V_{GS} = 0V, V_{DS} = 80V, T_j = 125^\circ\text{C}$			1000	
$R_{DS(on)}$	Drain - Source on Resistance	$V_{GS} = 10V, I_D = 35A$			19	$m\Omega$
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS} = V_{DS}, I_D = 1mA$	2		4	V
$I_{GSS}$	Gate - Source Leakage Current	$V_{GS} = \pm 30V, V_{DS} = 0V$			$\pm 100$	nA

## Dynamic Characteristics

Symbol	Characteristic	Test Conditions	Min	Typ	Max	Unit
$C_{iss}$	Input Capacitance	$V_{GS} = 0V$ $V_{DS} = 25V$ $f = 1MHz$		5100		pF
$C_{oss}$	Output Capacitance			1900		
$C_{rss}$	Reverse Transfer Capacitance			800		
$Q_g$	Total gate Charge	$V_{GS} = 10V$ $V_{Bus} = 50V$ $I_D = 70A$		200		nC
$Q_{gs}$	Gate - Source Charge			40		
$Q_{gd}$	Gate - Drain Charge			92		
$T_{d(on)}$	Turn-on Delay Time	<b>Inductive switching @ <math>125^\circ\text{C}</math></b> $V_{GS} = 15V$ $V_{Bus} = 66V$ $I_D = 70A$ $R_G = 5\Omega$		35		ns
$T_r$	Rise Time			70		
$T_{d(off)}$	Turn-off Delay Time			95		
$T_f$	Fall Time			125		
$E_{on}$	Turn-on Switching Energy ❶	<b>Inductive switching @ <math>25^\circ\text{C}</math></b> $V_{GS} = 15V, V_{Bus} = 66V$ $I_D = 70A, R_G = 5\Omega$		276		$\mu J$
$E_{off}$	Turn-off Switching Energy ❷			302		
$E_{on}$	Turn-on Switching Energy ❶	<b>Inductive switching @ <math>125^\circ\text{C}</math></b> $V_{GS} = 15V, V_{Bus} = 66V$ $I_D = 70A, R_G = 5\Omega$		304		$\mu J$
$E_{off}$	Turn-off Switching Energy ❷			320		

## Source - Drain diode ratings and characteristics

Symbol	Characteristic	Test Conditions	Min	Typ	Max	Unit
$I_S$	Continuous Source current (Body diode)	$T_c = 25^\circ\text{C}$			70	A
		$T_c = 80^\circ\text{C}$			50	
$V_{SD}$	Diode Forward Voltage	$V_{GS} = 0V, I_S = -139A$			1.3	V
$dv/dt$	Peak Diode Recovery ❸				5	V/ns
$t_{rr}$	Reverse Recovery Time	$I_S = -70A$ $V_R = 66V$		$T_j = 25^\circ\text{C}$	200	ns
$Q_{rr}$	Reverse Recovery Charge	$di_s/dt = 100A/\mu s$		$T_j = 25^\circ\text{C}$	1.4	$\mu C$

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

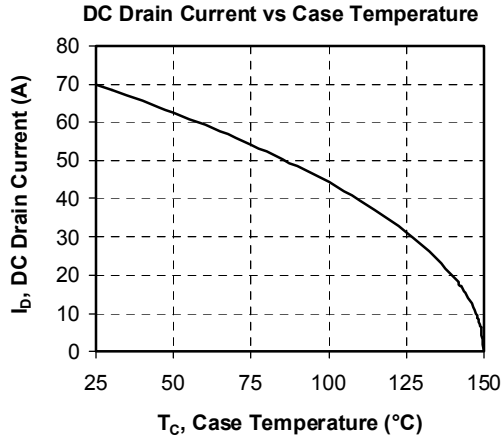
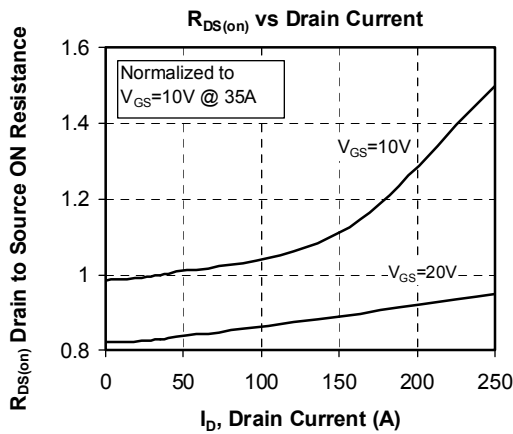
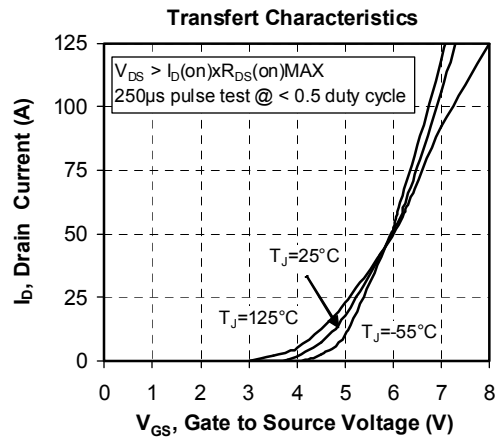
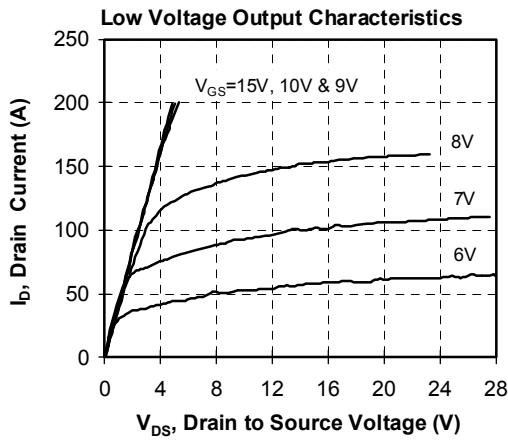
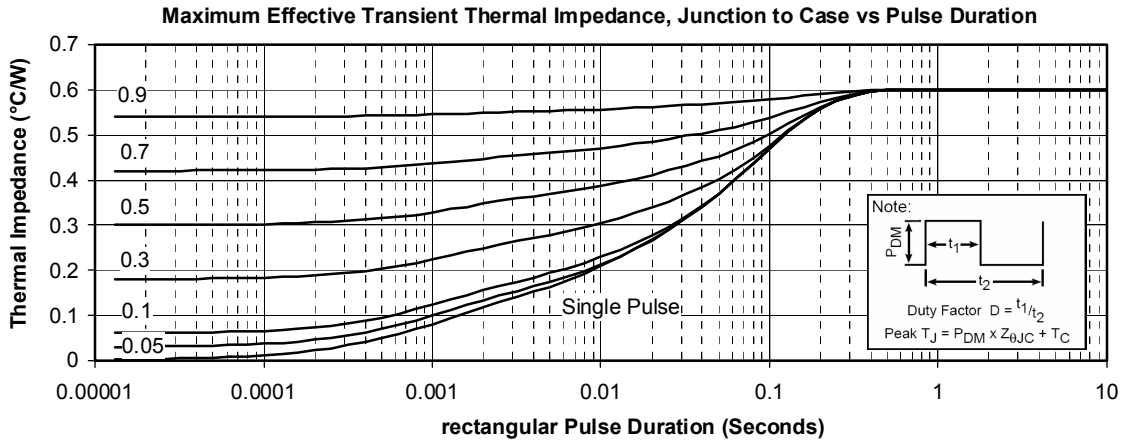
❷ In accordance with JEDEC standard JESD24-1.

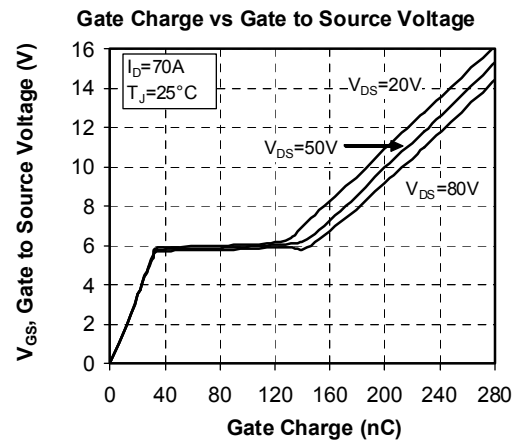
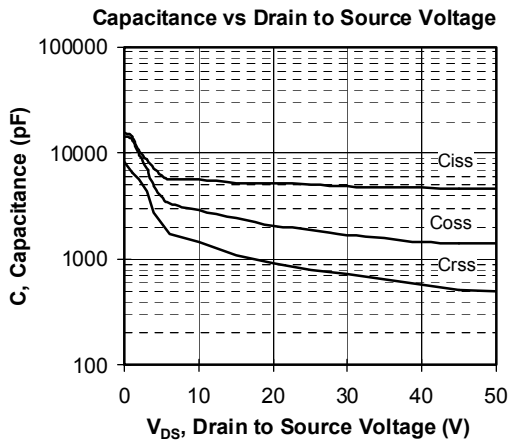
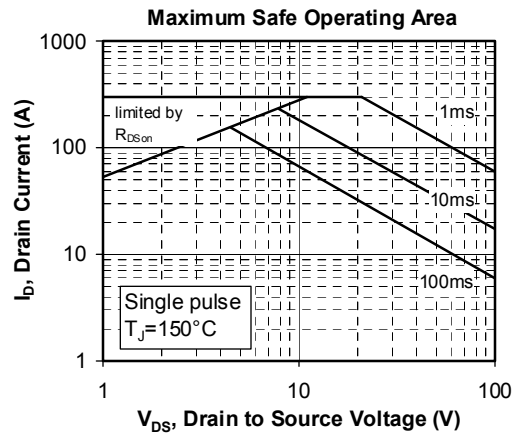
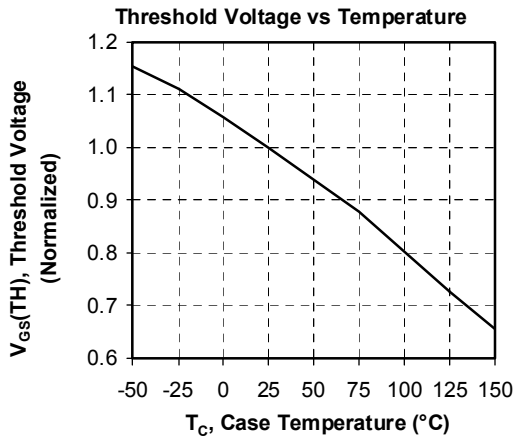
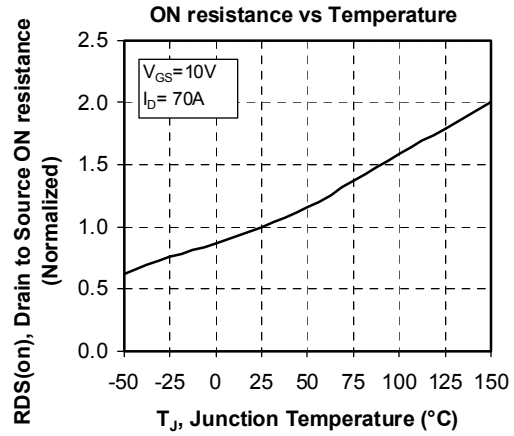
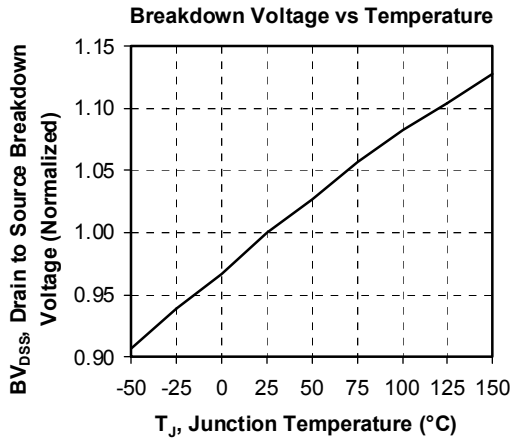
❸  $dv/dt$  numbers reflect the limitations of the circuit rather than the device itself.

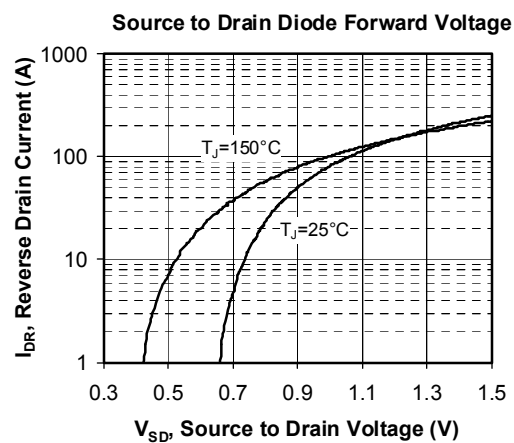
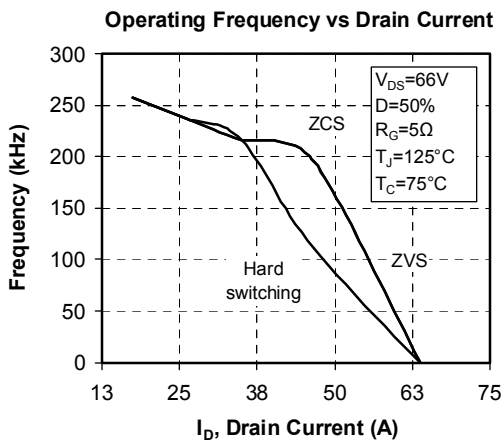
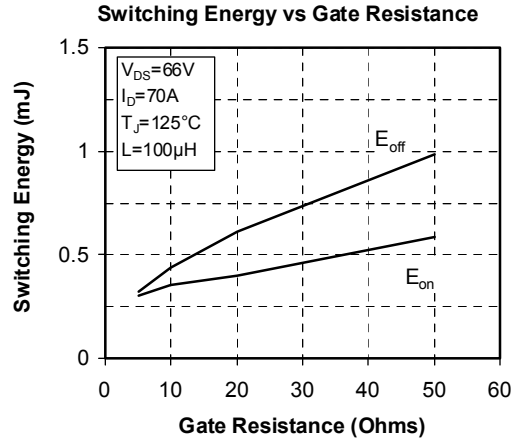
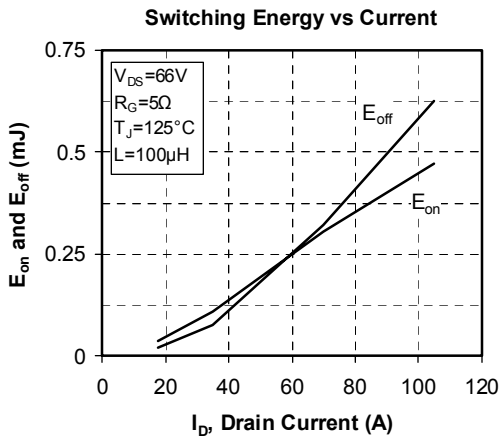
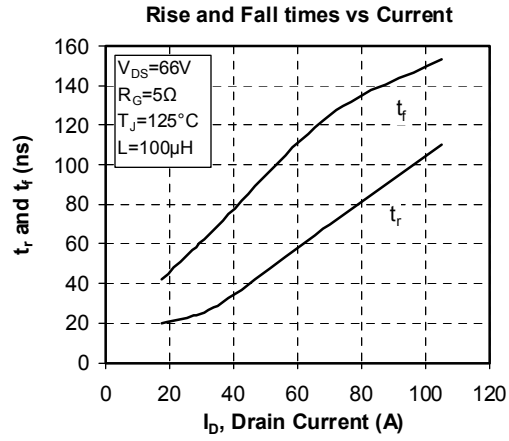
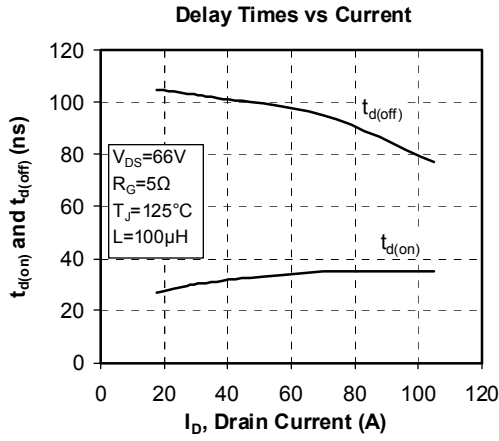
$$I_S \leq -70A \quad di/dt \leq 700A/\mu s \quad V_R \leq V_{DSS} \quad T_j \leq 150^\circ\text{C}$$



**Typical Performance Curve**







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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.