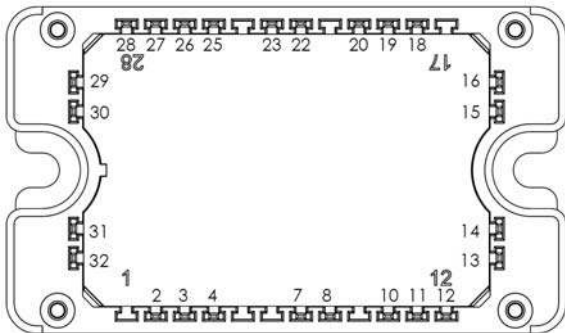
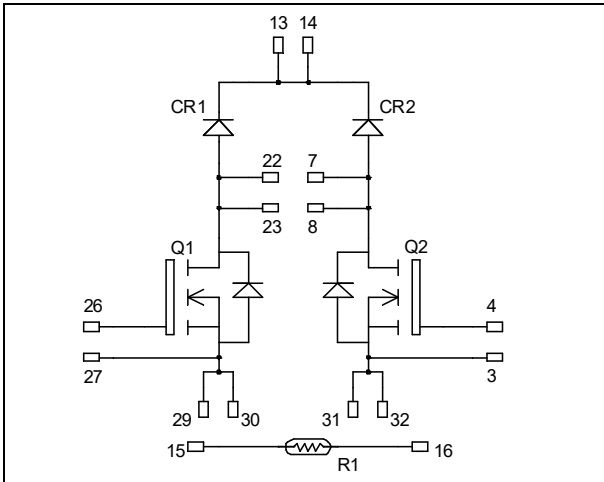


Dual Boost chopper  
MOSFET Power Module

**$V_{DSS} = 500V$**   
 **$R_{DSon} = 100m\Omega$  typ @  $T_j = 25^\circ C$**   
 **$I_D = 37A$  @  $T_c = 25^\circ C$**



All multiple inputs and outputs must be shorted together  
 Example: 13/14 ; 29/30 ; 22/23 ...

**All ratings @  $T_j = 25^\circ C$  unless otherwise specified**

**Absolute maximum ratings (per MOSFET)**

Symbol	Parameter	Max ratings	Unit
$V_{DSS}$	Drain - Source Voltage	500	V
$I_D$	Continuous Drain Current	$T_c = 25^\circ C$	A
		$T_c = 80^\circ C$	
$I_{DM}$	Pulsed Drain current	140	
$V_{GS}$	Gate - Source Voltage	$\pm 30$	V
$R_{DSon}$	Drain - Source ON Resistance	120	$m\Omega$
$P_D$	Power Dissipation	$T_c = 25^\circ C$	W
$I_{AR}$	Avalanche current (repetitive and non repetitive)	37	A
$E_{AR}$	Repetitive Avalanche Energy	50	mJ
$E_{AS}$	Single Pulse Avalanche Energy	1600	

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

**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
- Internal thermistor for temperature monitoring

**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
- Low profile
- Each leg can be easily paralleled to achieve a single boost of twice the current capability
- RoHS Compliant

## Electrical Characteristics (per MOSFET)

Symbol	Characteristic	Test Conditions	Min	Typ	Max	Unit
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{GS} = 0V, V_{DS} = 500V$			100	$\mu A$
$R_{DS(on)}$	Drain – Source on Resistance	$V_{GS} = 10V, I_D = 18.5A$		100	120	$m\Omega$
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS} = V_{DS}, I_D = 1mA$	3		5	V
$I_{GSS}$	Gate – Source Leakage Current	$V_{GS} = \pm 30V, V_{DS} = 0V$			$\pm 150$	nA

## Dynamic Characteristics (per MOSFET)

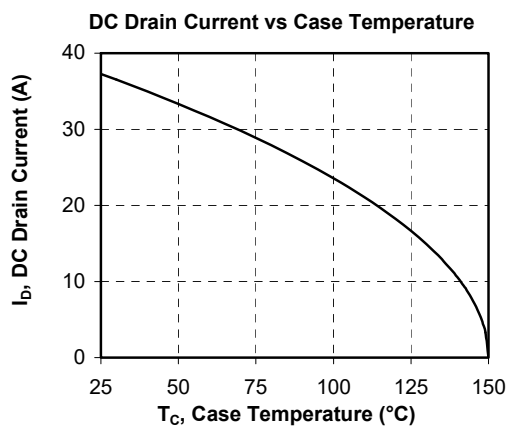
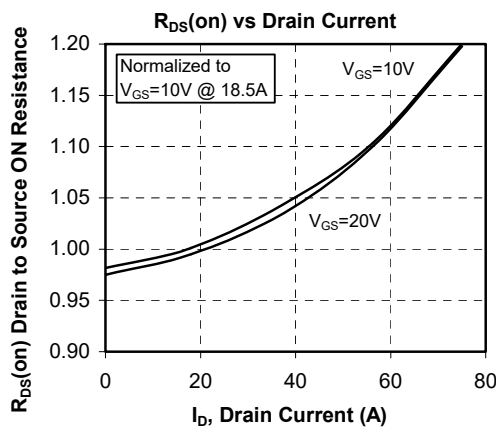
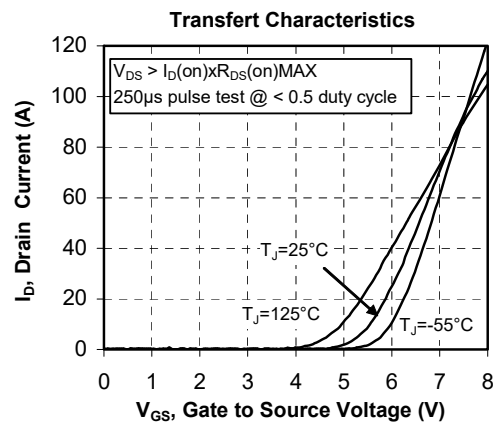
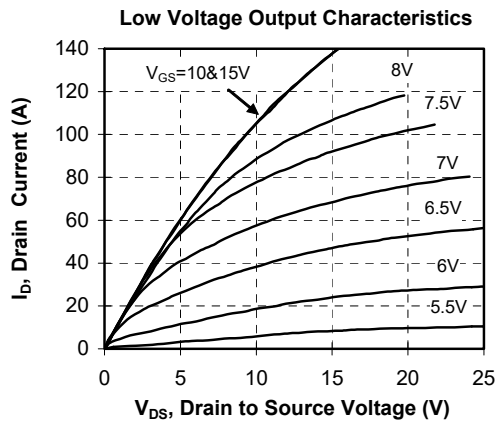
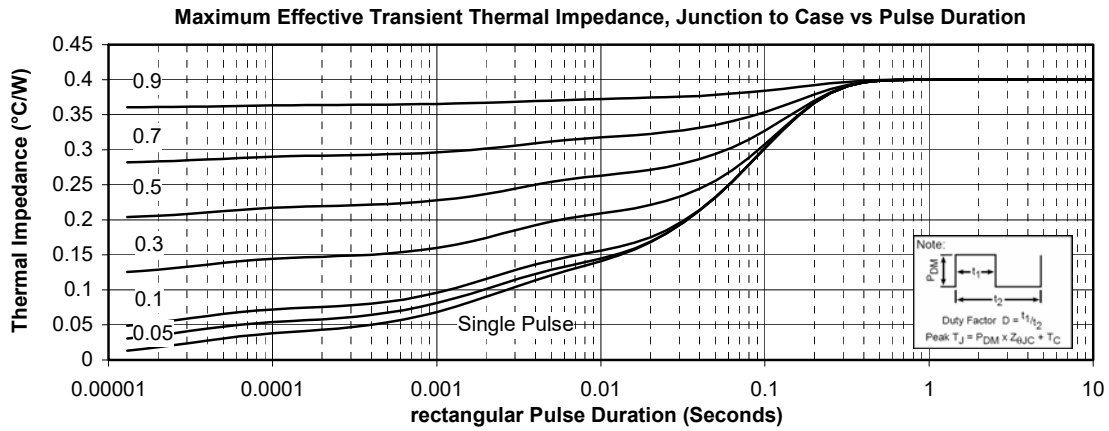
Symbol	Characteristic	Test Conditions	Min	Typ	Max	Unit
$C_{iss}$	Input Capacitance	$V_{GS} = 0V$		4367		pF
$C_{oss}$	Output Capacitance	$V_{DS} = 25V$		894		
$C_{rss}$	Reverse Transfer Capacitance	$f = 1MHz$		61		
$Q_g$	Total gate Charge	$V_{GS} = 10V$		96		nC
$Q_{gs}$	Gate – Source Charge	$V_{Bus} = 250V$		24		
$Q_{gd}$	Gate – Drain Charge	$I_D = 37A$		49		
$T_{d(on)}$	Turn-on Delay Time	<b>Inductive switching @ 125°C</b> $V_{GS} = 15V$ $V_{Bus} = 333V$ $I_D = 37A$ $R_G = 5\Omega$		15		ns
$T_r$	Rise Time			21		
$T_{d(off)}$	Turn-off Delay Time			73		
$T_f$	Fall Time			52		
$E_{on}$	Turn-on Switching Energy	<b>Inductive switching @ 25°C</b> $V_{GS} = 15V, V_{Bus} = 333V$ $I_D = 37A, R_G = 5\Omega$		566		$\mu J$
$E_{off}$	Turn-off Switching Energy			545		
$E_{on}$	Turn-on Switching Energy	<b>Inductive switching @ 125°C</b> $V_{GS} = 15V, V_{Bus} = 333V$ $I_D = 37A, R_G = 5\Omega$		931		$\mu J$
$E_{off}$	Turn-off Switching Energy			635		
$R_{thJC}$	Junction to Case Thermal Resistance				0.4	$^{\circ}C/W$

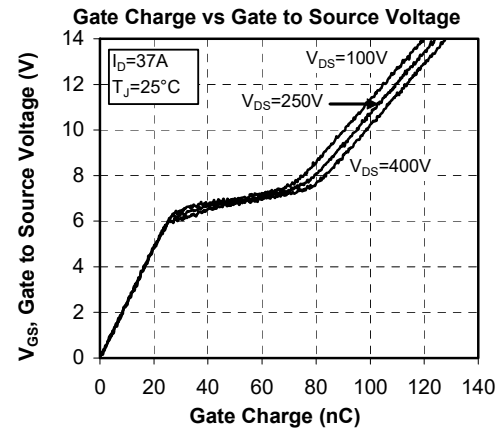
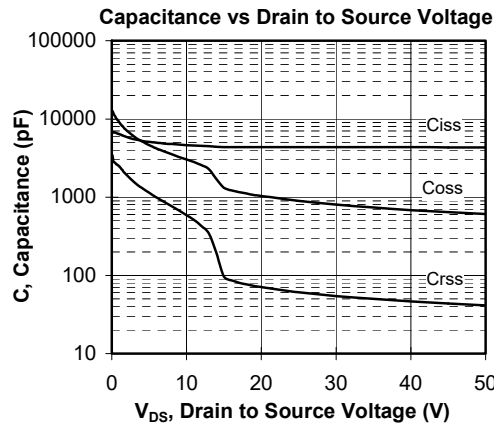
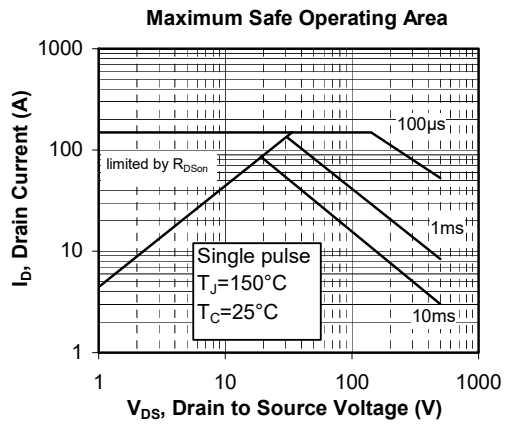
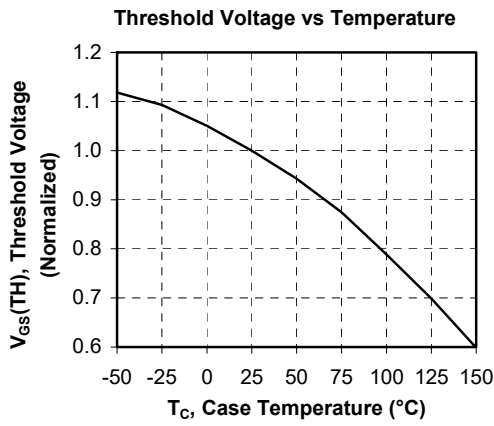
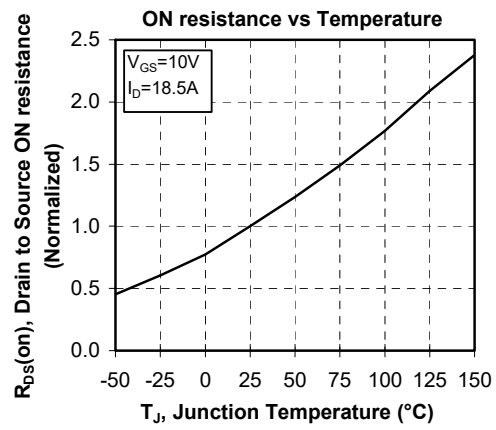
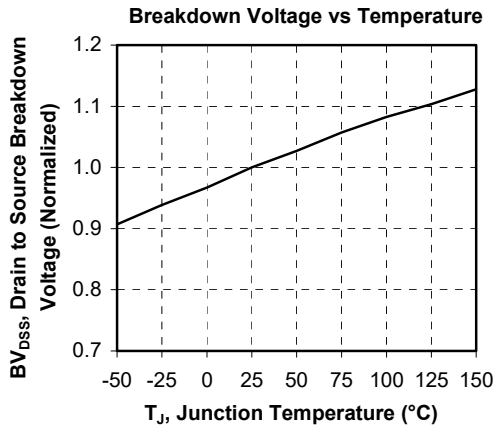
## Chopper Diode ratings and characteristics (per diode)

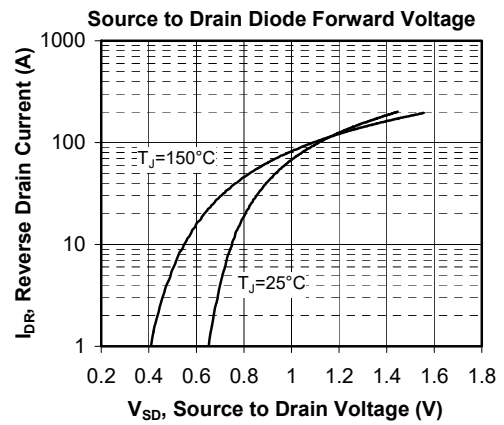
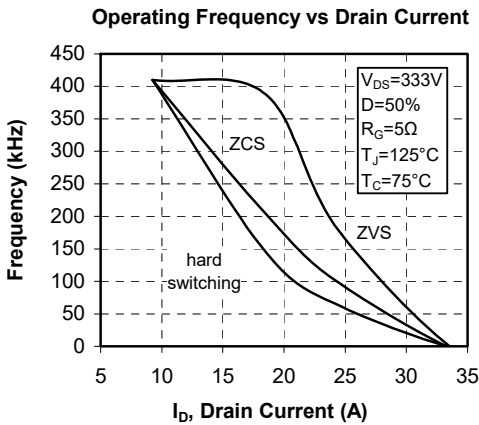
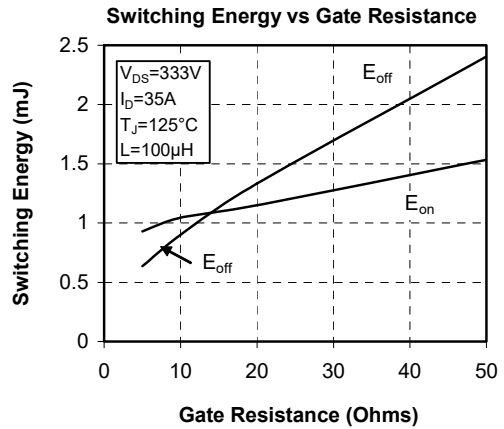
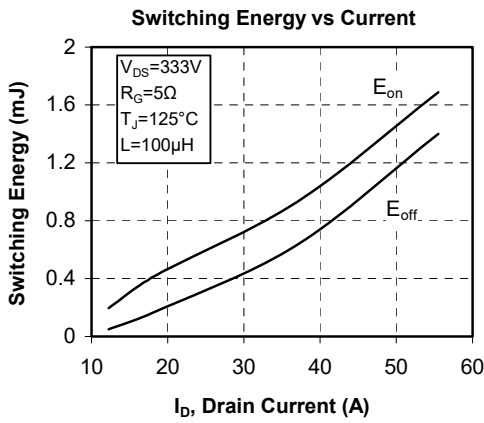
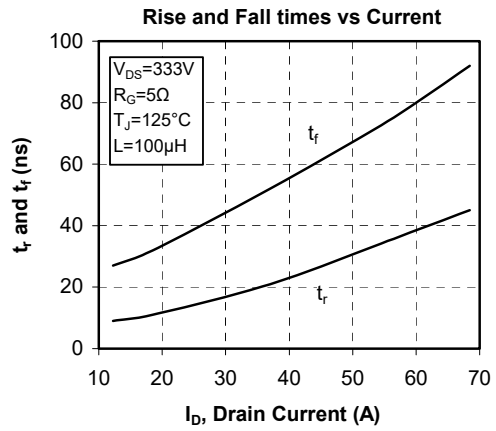
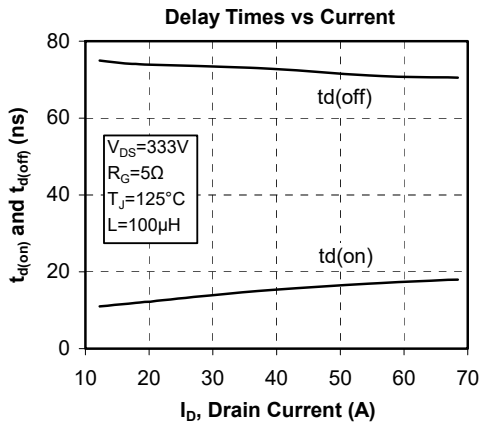
Symbol	Characteristic	Test Conditions	Min	Typ	Max	Unit
$V_{RRM}$	Peak Repetitive Reverse Voltage				600	V
$I_{RM}$	Reverse Leakage Current	$V_R = 600V$			50	$\mu A$
$I_F$	DC Forward Current	$T_c = 40^{\circ}C$		40		A
$V_F$	Diode Forward Voltage	$I_F = 40A$	$T_j = 25^{\circ}C$		1.45	V
			$T_j = 125^{\circ}C$		1.35	
$t_{rr}$	Reverse Recovery Time	$I_F = 40A$ $V_R = 300V$	$T_j = 25^{\circ}C$		95	ns
			$T_j = 125^{\circ}C$		115	
$Q_{rr}$	Reverse Recovery Charge	$di/dt = 2600A/\mu s$	$T_j = 25^{\circ}C$		2.6	$\mu C$
			$T_j = 125^{\circ}C$		4	
$R_{thJC}$	Junction to Case Thermal Resistance				1.5	$^{\circ}C/W$



## Typical Performance Curve







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