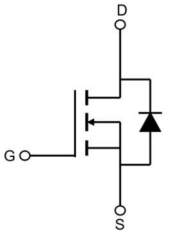
APC65R360M

Super-junction Power Mosfet

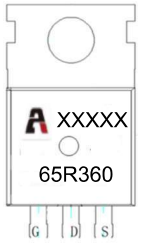
DATA SHEET

Feature

- 650V,11A
  $R_{DS(ON)}$ <360mΩ @V_{GS}=10V TYP:310 mΩ
- Low FOM $R_{DS(ON)} \times Q_G$
- Better EMI
- 100% UIS and Isolation tested
- RoHs compliant
- Halogen-free



Schematic Diagram



Marking and pin assignment

Application

- Swith Mode Power Supply (SMPS)
- Uninterruptible Power Supply (UPS)
- Power Factor Correction (PFC)
- Charge

Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity (PCS)
65R360	APC65R360M	TO-220	-	-	1000

ABSOLUTE MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	650	V
Gate-Source Voltage	V_{GSS}	±30	V
Continuous Drain Current (T_a =25℃) (1)	I_D	11	A
Continuous Drain Current (T_a =100℃) (1)		8.5	A
Pulsed Drain Currenr (1) (2)	I_{DM}	33	A
Singel Pulsed Avalanche Energy (3)	E_{AS}	190	mJ
Power Dissipation	P_D	62.5	W
Mosfet dV/dT ruggedness	dV/dT	TBD	V/ns
Reverse diode dV/dT		TBD	V/ns
Thermal Resistance from Junction to Ambient(4)	$R_{\theta JA}$	62	℃/W
Thermal Resistance from Junction to Case(4)	$R_{\theta JC}$	2	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55~ +150	℃

MOSFET ELECTRICAL CHARACTERISTICS(T_a=25℃ unless otherwise noted)

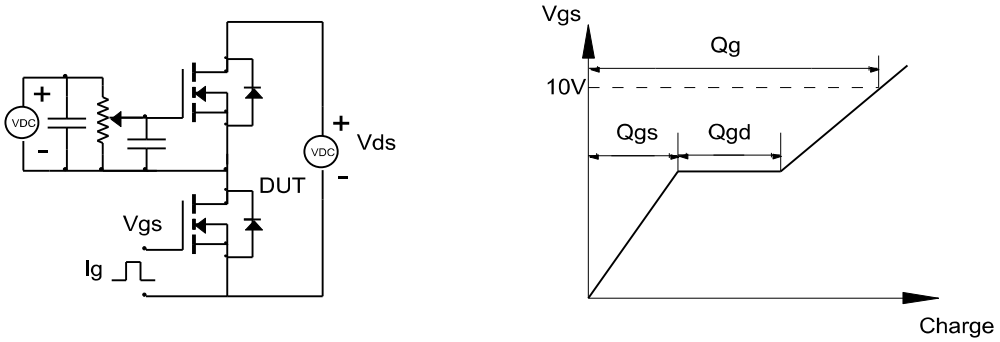
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =250uA	650	-	-	V
Zero gate voltage drain current	I_{DSS}	V_{DS} =650V, V_{GS} = 0V,T_j=25℃	-	-	1	uA
		V_{DS} =100V, V_{GS} = 0V,T_j=150℃	-	-	100	
Gate-body leakage current	I_{GSS}	V_{GS} =±30V,V_{DS} = 0V	-	-	±100	nA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250uA	2.5	3.4	4.5	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =5.5A	-	310	360	mΩ
Forward Transconductance	g_{FS}	V_{DS} =10V, I_D =4A	-	TBD	-	S
Gate Resistance	R_G	f=1.0MHZ open drain	-	TBD	-	Ω
Dynamic characteristics						
Input Capacitance	C_{iss}	V_{DS} =100V, V_{GS} =0V, f =100KHz	-	TBD	-	pF
Output Capacitance	C_{oss}		-	TBD	-	
Reverse Transfer Capacitance	C_{rss}		-	TBD	-	
Switching characteristics						
Turn-on delay time	$t_{d(on)}$	V_{DS}=520V, I_D=5.5A, R_G=25Ω,VGS=10V	-	TBD	-	ns
Turn-on rise time	t_r		-	TBD	-	
Turn-off delay time	$t_{d(off)}$		-	TBD	-	
Turn-off fall time	t_f		-	TBD	-	
Total Gate Charge	Qg	VDS=520V, ID=5.5A, VGS=10V	-	TBD	-	nC
Gate-Source Charge	Qgs		-	TBD	-	
Gate-Drain Charge	Qgd		-	TBD	-	
Source-Drain Diode characteristics						
Diode Forward voltage	V_{SD}	V_{GS} =0V, I_S=5.5A	-	-	1.2	V
Maximum Continuous Body-Diode Forward Current	I_S		-	-	TBD	A
Maximum Pulsed Body-Diode Forward Current(5)	I_{SM}		-	-	TBD	A
Peak Reverse Recovery Current	I_{rrm}	V_R=400v,IF=40A,di_F/dt=100A/us	-	TBD	-	A
Reverse Recovery Time	Q_{rr}		-	TBD	-	uC
Reverse Recovery Charge	T_{rr}		-	TBD	-	ns

Notes:

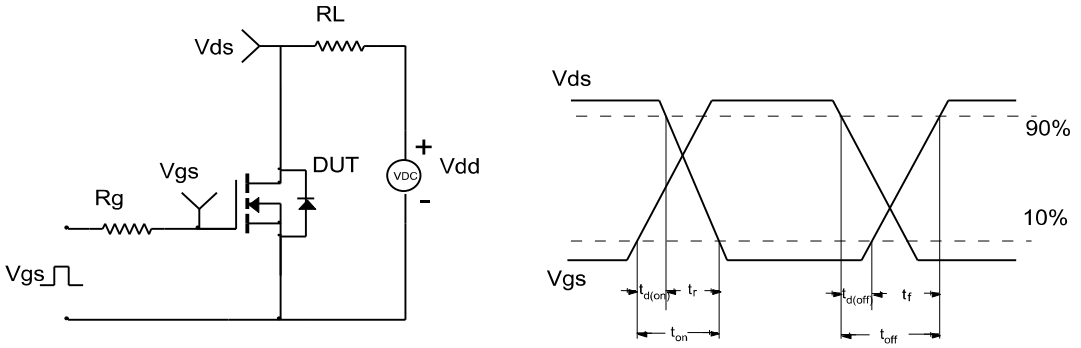
1. The max drain current rating limited by package and maximum junction temperature
2. Repetitive Rating: pulse width limited by maximum junction temperature
3. EAS Condition:T_J=25℃,V_{DD}=150V,R_G=25Ω,L=10mH
4. Mount on minimun PCB layout
5. Pulse Test:Pulse width≤300us,Duty≤2%
6. Essentially independent of operating temperature

Test Circuit and Waveform

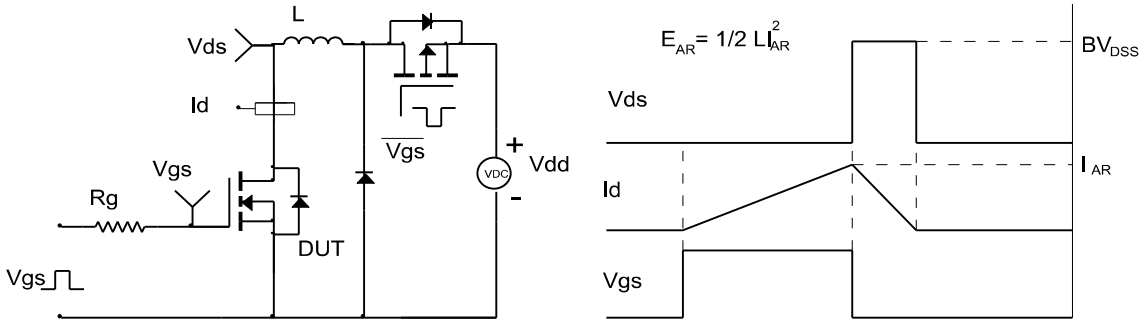
Gate Charge Test Circuit & Waveform



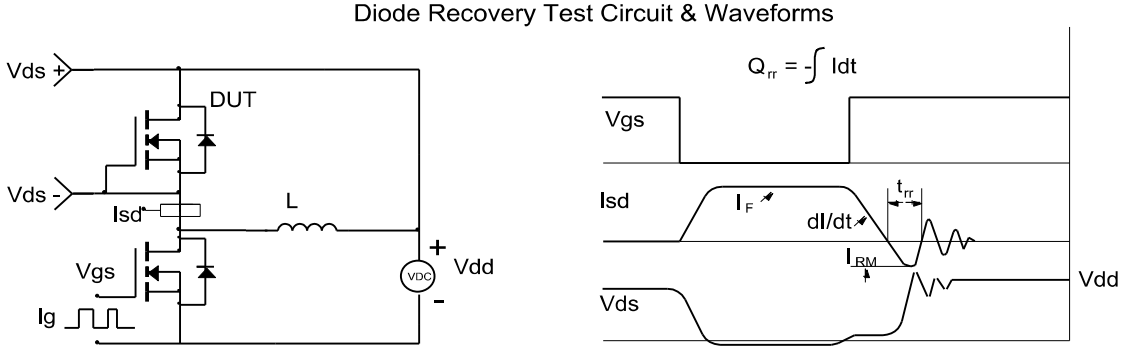
Resistive Switching Test Circuit & Waveforms



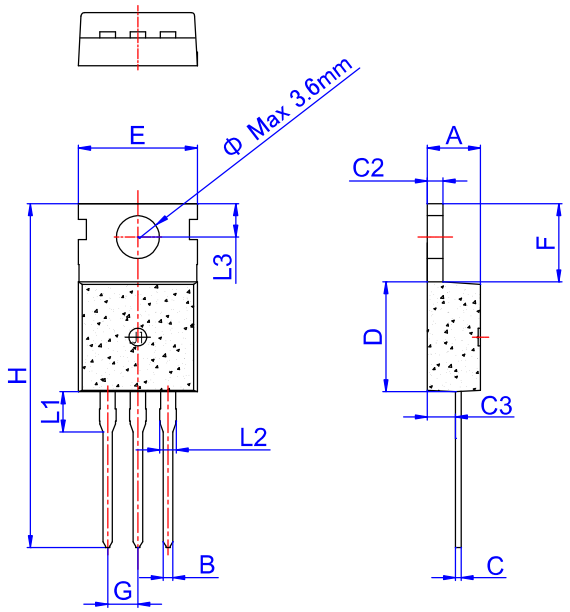
Unclamped Inductive Switching (UIS) Test Circuit & Waveforms



Diode Recovery Test Circuit & Waveforms



TO-220 Package Information



TO-220

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.70		0.90	0.028		0.035
C	0.45		0.60	0.018		0.024
C2	1.23		1.32	0.048		0.052
C3	2.20		2.60	0.087		0.102
D	8.90		9.90	0.350		0.390
E	9.90		10.3	0.390		0.406
F	6.30		6.90	0.248		0.272
G		2.54			0.1	
H	28.0		29.8	1.102		1.173
L1		3.39			0.133	
L2	1.14		1.70	0.045		0.067
L3	2.65		2.95	0.104		0.116
Φ		3.6			0.142	