

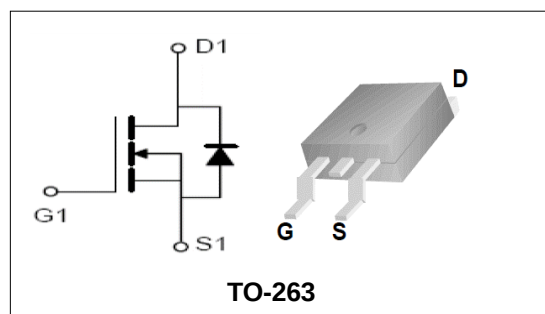
**100V/202A N-Channel Advanced Power MOSFET****Features**

- Fast switching
- Low RDS(on) & FOM
- Low Gate Charge

BVDSS	100	V
ID(Silicon limit)	202	A
RDSON@VGS=10V	3.1	mΩ

Applications

- High Frequency Switching
- Synchronous Rectification

**Order Information**

Product	Package	Marking	Reel Size	Reel	Carton
PGY10N037	TO-263	PGY10N037	13inch	800PCS	6400PCS
			/	50PCS	5000PCS

Absolute Maximum Ratings

Symbol	Parameter		Rating	Unit
Common Ratings (TC=25°C Unless Otherwise Noted)				
V _{(BR)DSS}	Drain-Source Breakdown Voltage		100	V
V _{GS}	Gate-Source Voltage		±20	V
T _J	Maximum Junction Temperature		150	°C
T _{STG}	Storage Temperature Range		-55 to 150	°C
I _S	Diode Continuous Forward Current	TC =25°C	170	A
Mounted on Large Heat Sink				
E _{AS}	Single Pulse Avalanche Energy (Note1)		795	mJ
I _{DM}	Pulse Drain Current Tested (Note2)	TC =25°C	800	A
I _D	Continuous Drain current(Silicon limit)	TC =25°C	202	A
	Continuous Drain current (Package limit)		160	A
P _D	Maximum Power Dissipation	TC =25°C	205	W
R _{θJc}	Thermal Resistance Junction-to-Case		0.61	°C/W



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Symbol	Parameter	Condition	Min.	Typ.	Max.	Unit
Static Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
V _{(BR)DSS}	Drain- Source Breakdown Voltage	VGS=0V ID=250μA	100	--	--	V
I _{DSS}	Zero Gate Voltage Drain current	VDS=100V,VGS=0V	--	--	1	μA
I _{GSS}	Gate-Body Leakage Current	VGS=±20V,VDS=0V	--	--	±100	nA
V _{GS(TH)}	Gate Threshold Voltage	VDS=VGS,ID=250μA	2	--	4	V
R _{DS(ON)}	Drain-Source On-State Resistance (Note3)	VGS=10V, ID=50A	--	3.1	3.7	mΩ
Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated) (Note4)						
C _{iss}	Input Capacitance	VDS=50V, VGS=0V, F=1MHz	--	8200	--	pF
C _{oss}	Output Capacitance		--	771	--	pF
C _{rss}	Reverse Transfer Capacitance		--	33	--	pF
Q _g	Total Gate Charge	VDS=50V, ID=20A, VGS=10V	--	131	--	nC
Q _{gs}	Gate-Source Charge		--	31.5	--	nC
Q _{gd}	Gate-Drain Charge		--	22	--	nC
R _G	Gate resistance	F=1MHz	--	1.5	--	Ω
Switching Characteristics (Note4)						
t _{d(on)}	Turn-on Delay Time	VDS=50V, ID=20A, RG=10Ω, VGS=10V	--	89	--	nS
t _r	Turn-on Rise Time		--	128	--	nS
t _{d(off)}	Turn-off Delay Time		--	166	--	nS
t _f	Turn-off Fall Time		--	75	--	nS
Source- Drain Diode Characteristics@ TJ = 25°C (unless otherwise stated)						
V _{SD}	Forward on voltage	IS=50A,VGS=0V	--	--	1.2	V

Note:

- Limited by TJmax, starting TJ = 25° C, RG = 25Ω, VD =50V, VGS =10V. Part not recommended for use above this value.
- Repetitive Rating: Pulse width limited by maximum junction temperature.
- Pulse Test: pulse width ≤ 300 us, duty cycle ≤ 2%.
- Guaranteed by design, not subject to production testing.



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Typical Characteristics

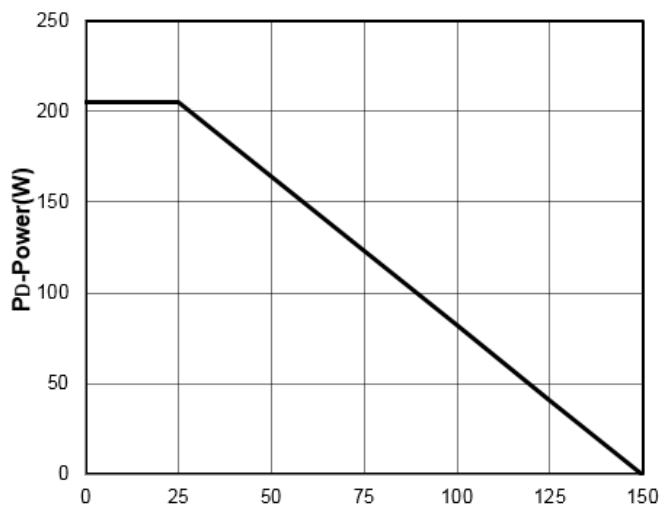


Figure1: T_j Junction Temperature (°C)

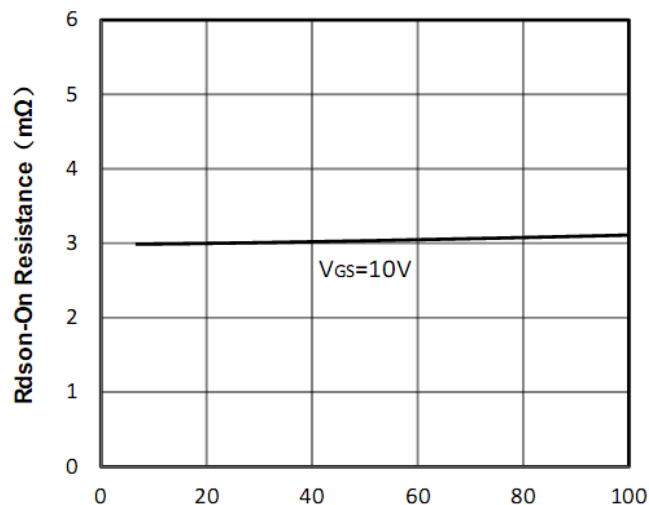


Figure2: I_d Drain Current (A)

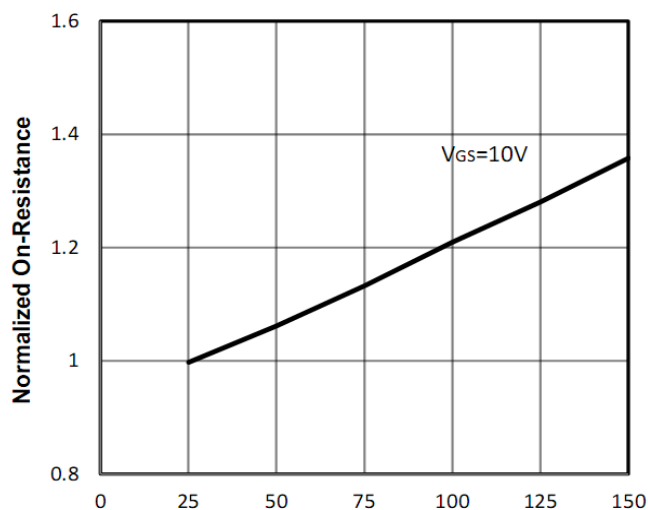


Figure3: T_j Junction Temperature (°C)

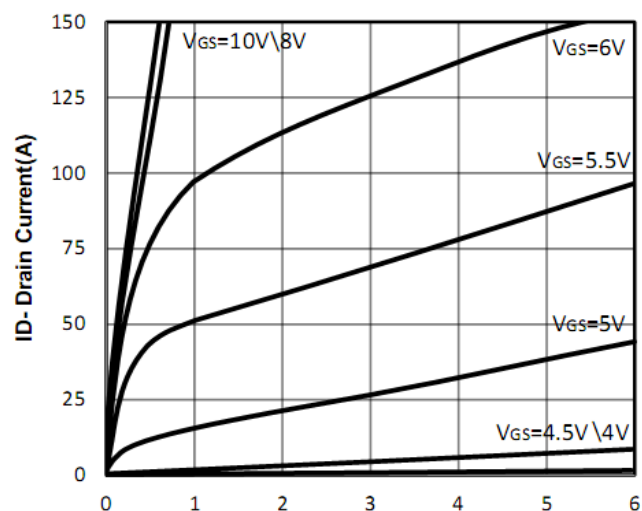


Figure4: V_{ds} Drain-Source Voltage (V)

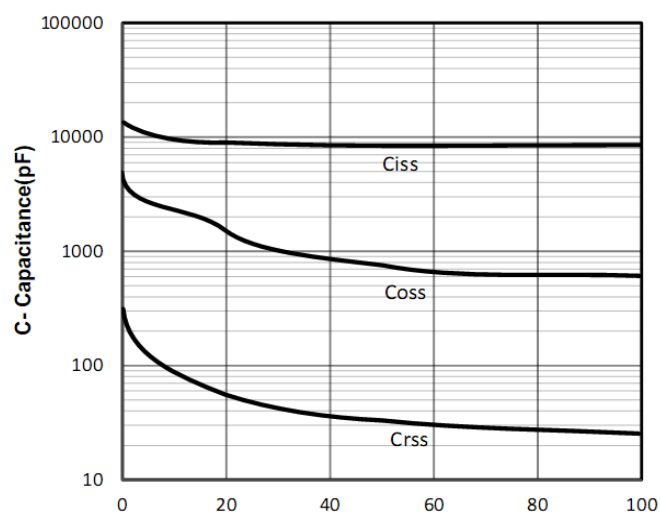


Figure5: V_{ds} Drain-Source Voltage (V)

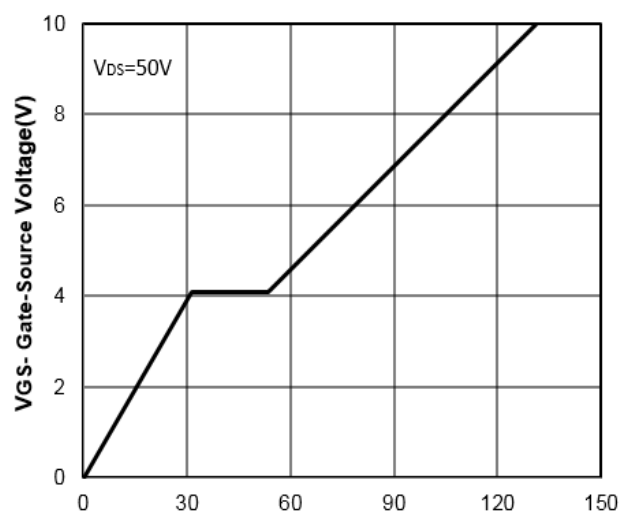


Figure6: Q_g Gate Charge (nC)



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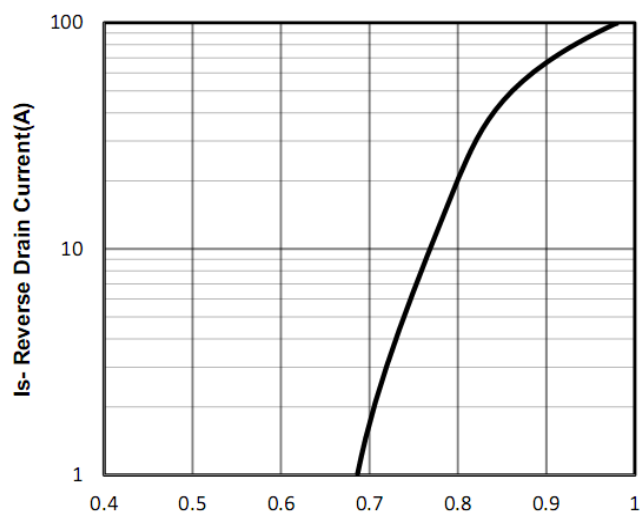


Figure7: Vsd Source-Drain Voltage (V)

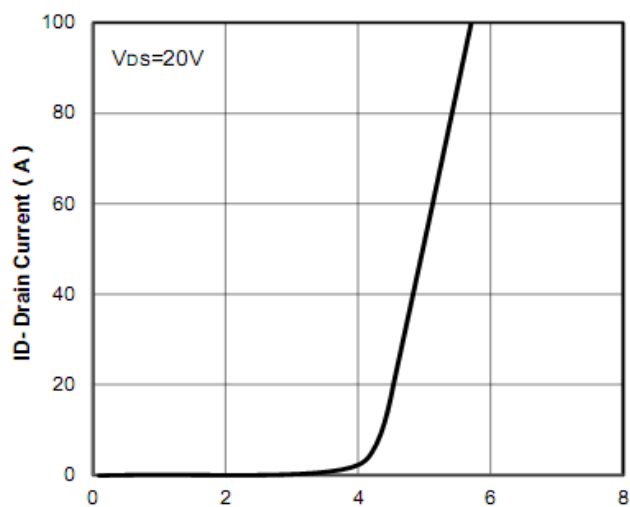


Figure8: Vgs Gate-Source Voltage (V)

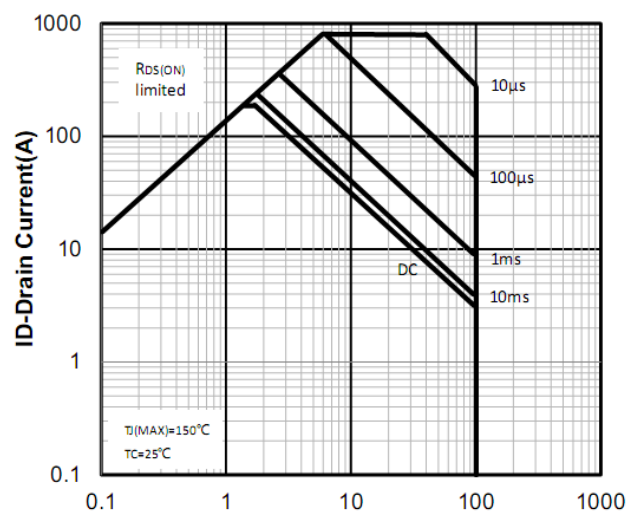


Figure9: VDS Drain -Source Voltage (V)

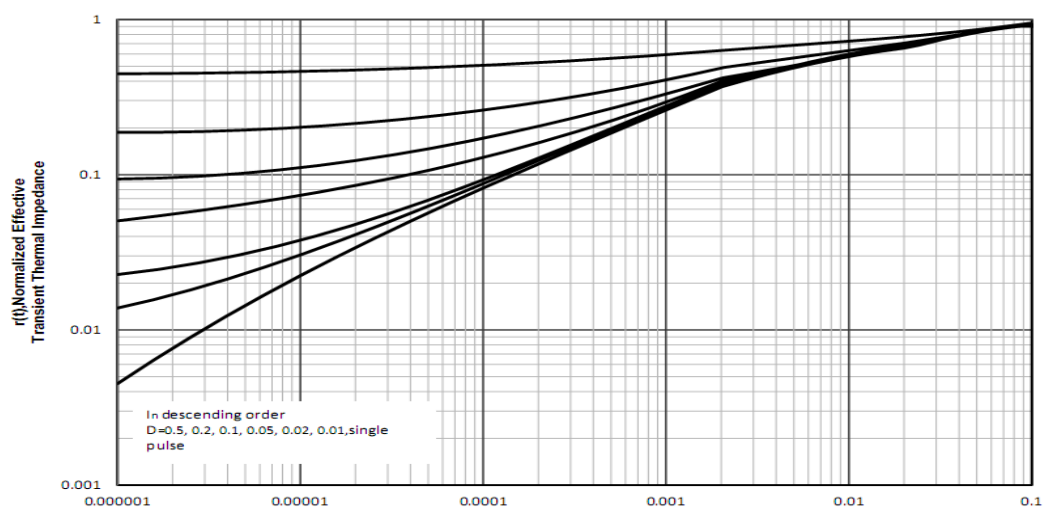


Figure10: Square Wave Pulse Duration (sec)



Test Circuit and Waveform:

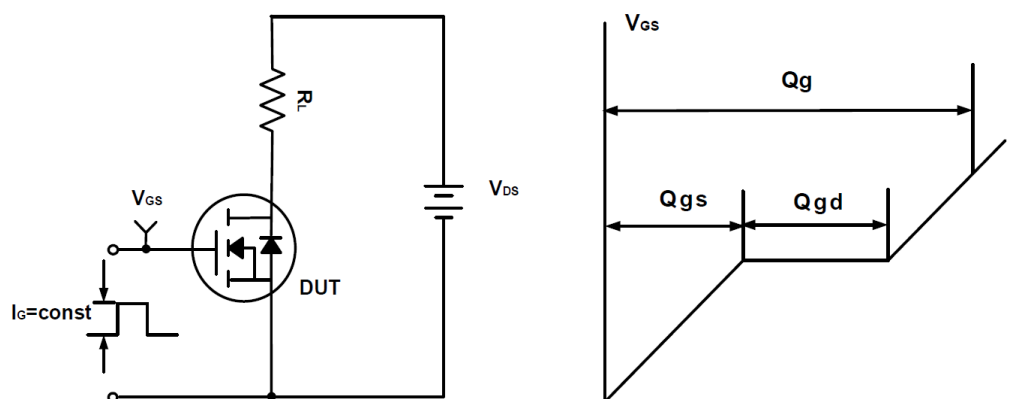


Figure A Gate Charge Test Circuit & Waveforms

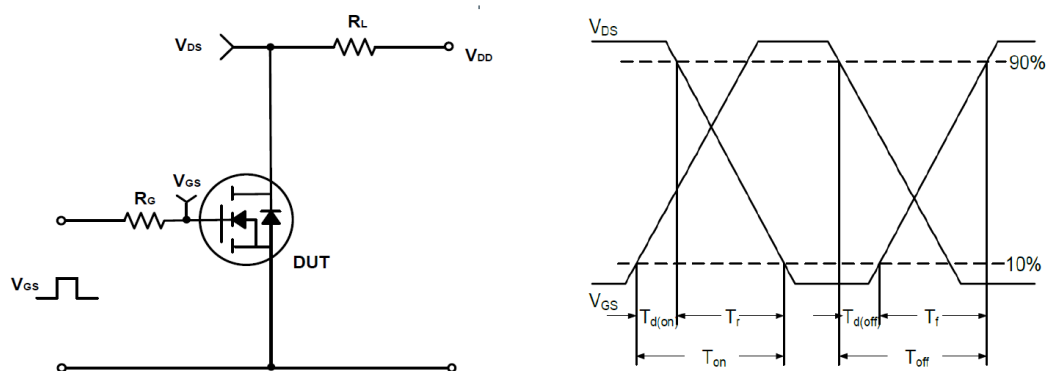


Figure B Switching Test Circuit & Waveforms

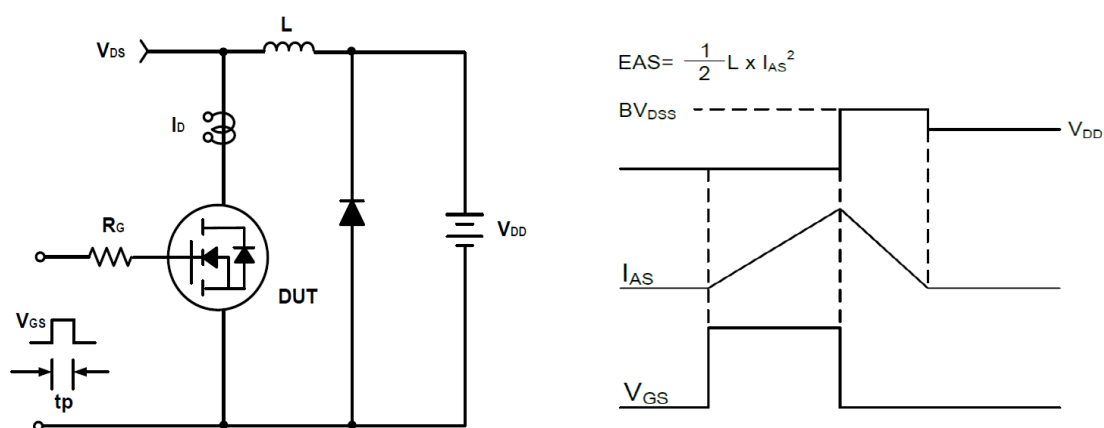
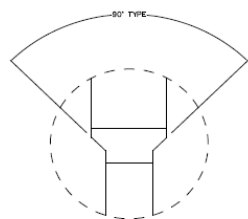
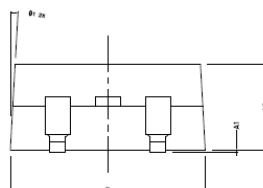


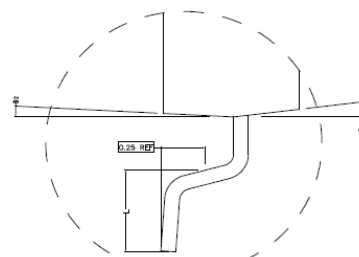
Figure C Unclamped Inductive Switching Circuit & Waveforms

**TO-263 Package Outline Dimensions (Units: mm)**

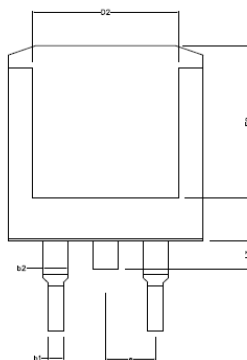
DETAIL F



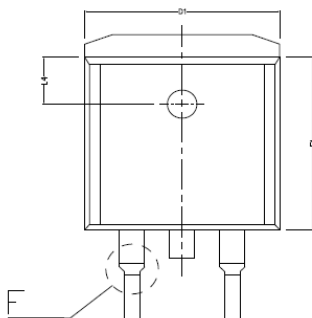
SIDE VIEW



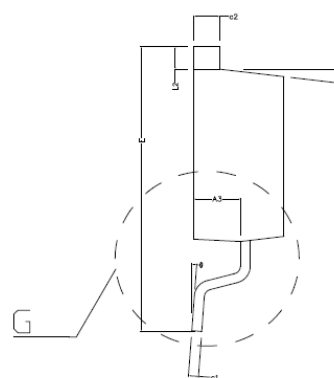
DETAIL G



BOTTOM VIEW



TOP VIEW



SIDE VIEW

COMMON DIMENSIONS (UNITS OF MEASURE IS mm)			
	MIN	NORMAL	MAX
A1	0.020	0.100	0.200
A2	4.470	4.570	4.670
A3	2.300	2.350	2.400
b1	0.750	0.800	0.850
b2	1.220	1.270	1.320
c1	0.450	0.500	0.550
c2	1.250	1.300	1.350
D	9.900	10.000	10.100
D1	9.880REF		
D2	7.400REF		
E	14.900	15.100	15.300
E1	9.000	9.100	9.200
E2	8.100REF		
e	2.540TYPE		
L	2.100	2.300	2.500
L2	1.100	1.200	1.300
L3	1.300	1.500	1.700
L4	2.50 TYPE		
θ1	3° TYPE		
θ2	3° TYPE		
θ3	7° TYPE		
θ4	7° TYPE		
θ	0 ~ 8°		