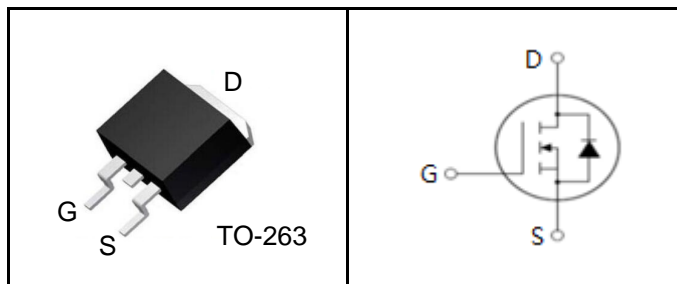


FEATURES

- $BV_{DS} = 150V$, $I_D = 157A$
- $R_{DS(on)} : 6.3m\Omega$ (Max) @ $V_{GS} = 10V$
- Very low FOM $R_{DS(on)} \times Q_g$
- 100% avalanche tested
- RoHS compliant



APPLICATIONS

- Switch Mode Power Supply (SMPS)
- Uninterruptible Power Supply (UPS)
- High-Frequency Switching and Synchronous Rectification



Device Marking and Package Information

Device	Package	Marking
MPGC15R063	TO-263	MPGC15R063

Absolute Maximum Ratings ($T_A = 25^\circ C$ unless otherwise noted)

Symbol	Parameter	Limit	Unit
V_{DS}	Drain-Source Voltage ($V_{GS} = 0V$)	150	V
V_{GS}	Gate-Source Voltage ($V_{DS} = 0V$)	± 20	V
I_D	Drain Current-Continuous ($T_C = 25^\circ C$)	157	A
	Drain Current-Continuous ($T_C = 100^\circ C$)	111	A
$I_{DM (pluse)}$	Drain Current-Continuous @ Current-Pulsed (Note 1)	628	A
P_D	Maximum Power Dissipation ($T_C = 25^\circ C$)	326	W
	Maximum Power Dissipation ($T_C = 100^\circ C$)	163	W
E_{AS}	Avalanche energy (Note 2)	1500	mJ
T_J, T_{STG}	Operating Junction and Storage Temperature Range	-55 To 175	$^\circ C$

Thermal Characteristic

Symbol	Parameter	Typ	Max	Unit
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case		0.46	$^\circ C/W$



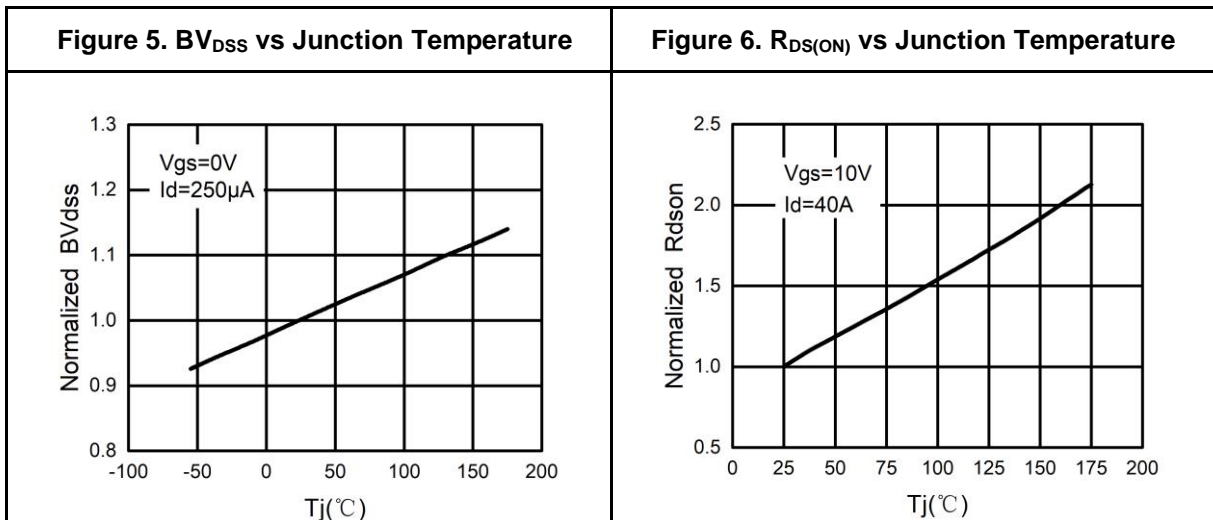
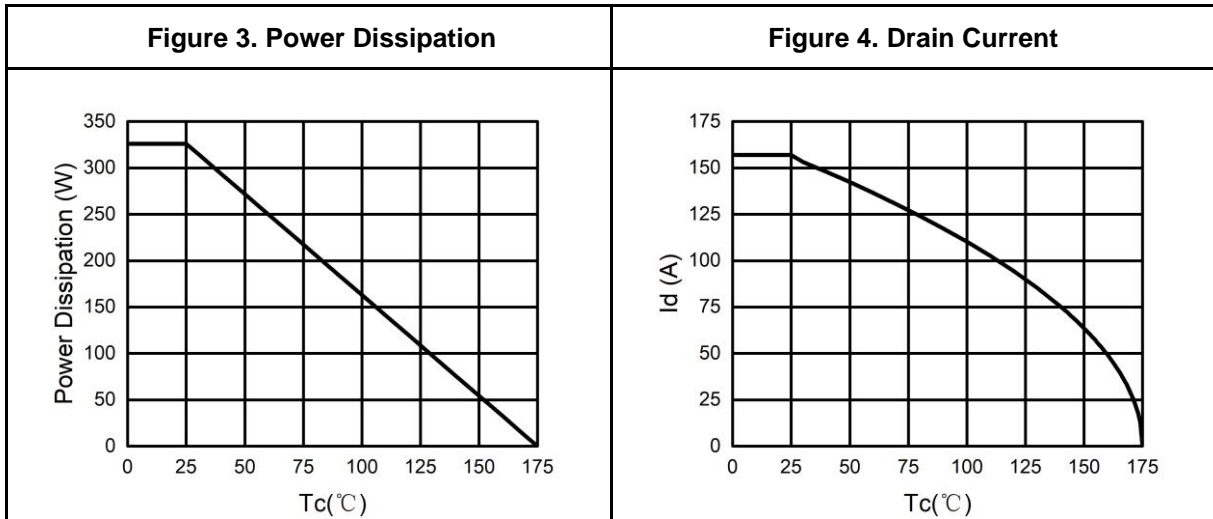
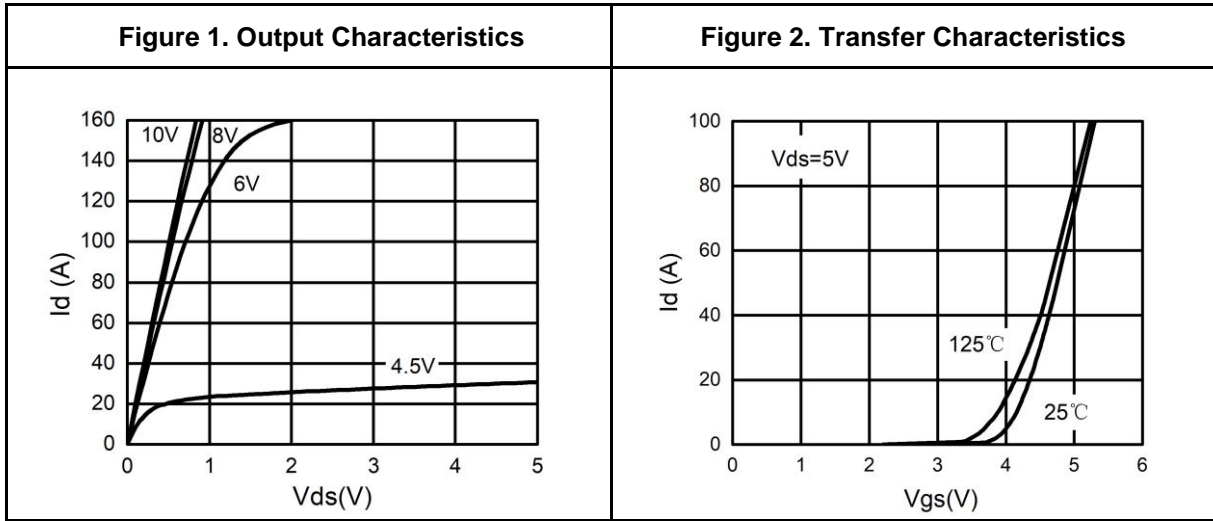
Electrical Characteristics (T_J=25°C unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
On/Off States						
B _{VDS}	Drain-Source Breakdown Voltage	V _{GS} =0V I _D =250μA	150	167		V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =140V, V _{GS} =0V			1	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±20V, V _{DS} =0V			±100	nA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	2		4	V
g _{FS}	Forward Transconductance	V _{DS} =5V, I _D =15A		33		S
R _{DS(ON)}	Drain-Source On-State Resistance	V _{GS} =10V, I _D =40A		5.3	6.3	mΩ
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =25V, V _{GS} =0V, f=1.0MHz		4200		pF
C _{oss}	Output Capacitance			2867		pF
C _{rss}	Reverse Transfer Capacitance			215		pF
Switching Parameters						
t _{d(on)}	Turn-on Delay Time	V _{GS} =10V, V _{DS} =75V, R _L =1.07Ω, R _{GEN} =3Ω		18		nS
t _r	Turn-on Rise Time			22		nS
t _{d(off)}	Turn-Off Delay Time			35		nS
t _f	Turn-Off Fall Time			10		nS
Q _g	Total Gate Charge	V _{GS} =10V, V _{DS} =75V, I _D =70A		65		nC
Q _{gs}	Gate-Source Charge			20		nC
Q _{gd}	Gate-Drain Charge			19		nC
Source-Drain Diode Characteristics						
I _{SD}	Source-Drain Current (Body Diode)				161	A
V _{SD}	Forward on Voltage	V _{GS} =0V, I _S =20A			1.2	V
t _{rr}	Reverse Recovery Time	I _F =20A, dI/dt=500A/μs		101		ns
Q _{rr}	Reverse Recovery Charge	I _F =20A, dI/dt=500A/μs		1,240		nC

Notes

1. Repetitive Rating: Pulse width limited by maximum junction temperature
2. L=0.5mH, V_{DD} = 50V, R_G = 25Ω, Starting T_J = 25°C

Typical Electrical And Thermal Characteristics (Curves)



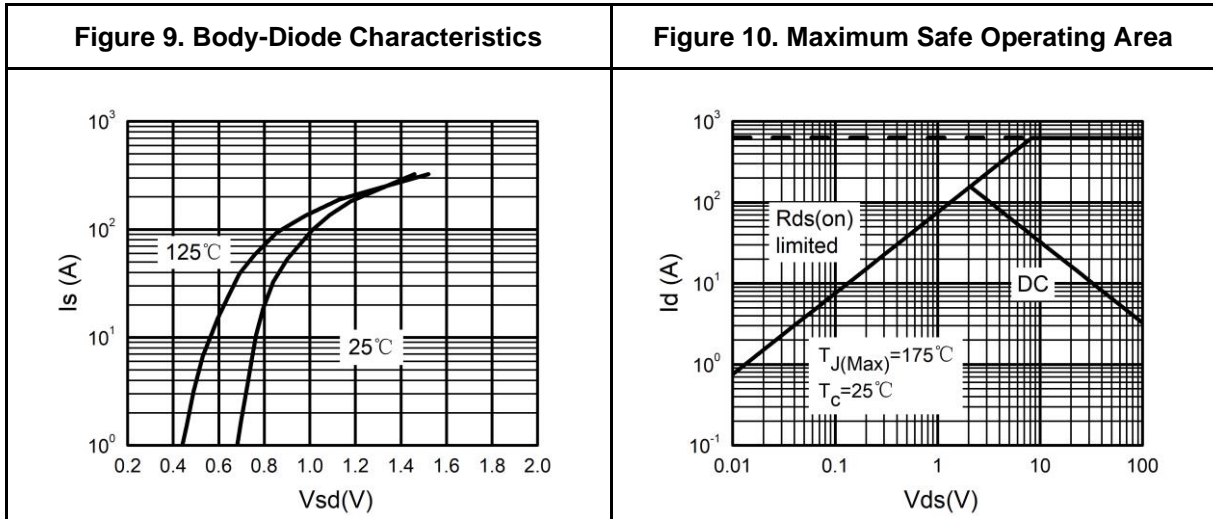
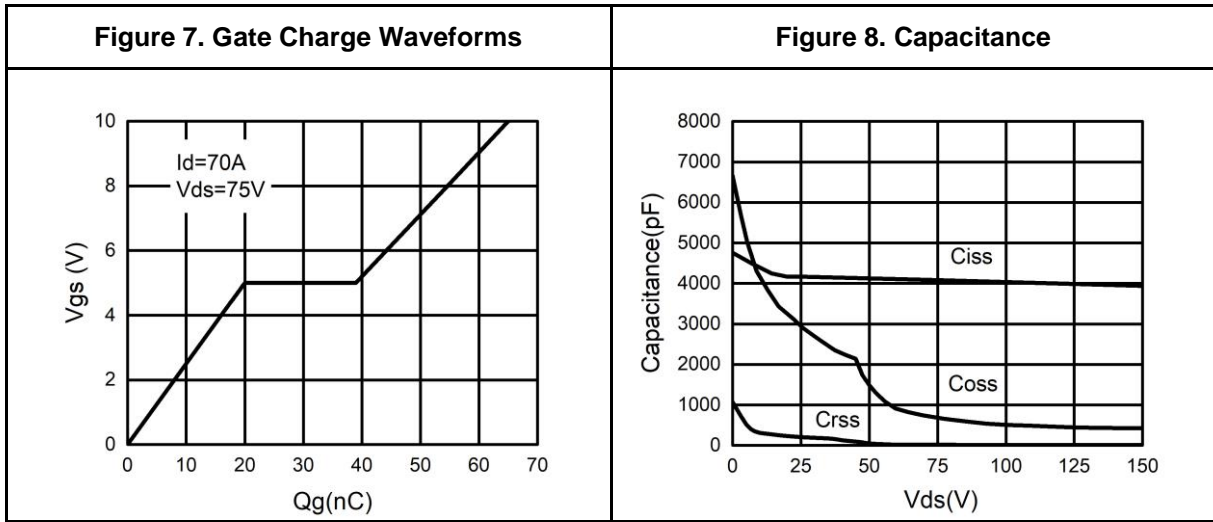


Figure A: Gate Charge Test Circuit and Waveform

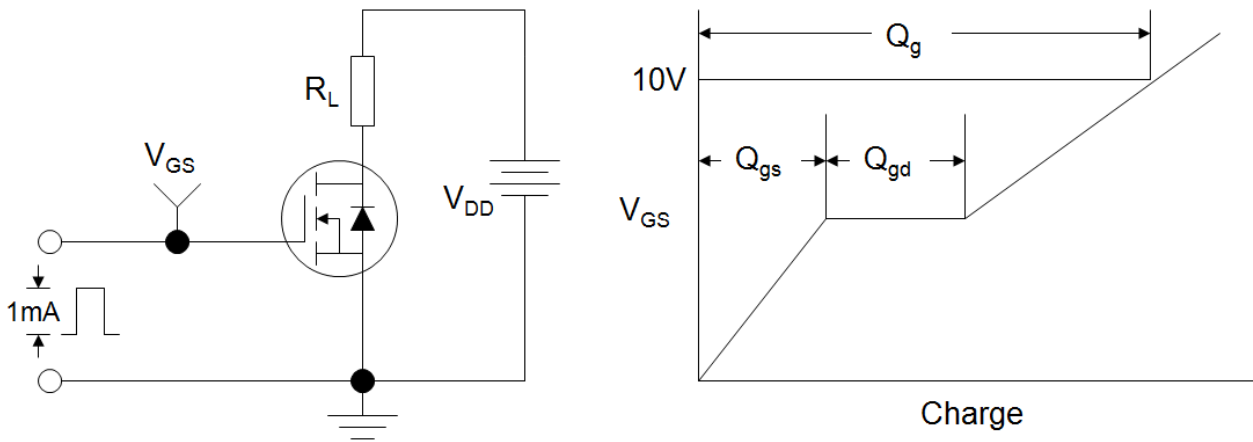


Figure B: Resistive Switching Test Circuit and Waveform

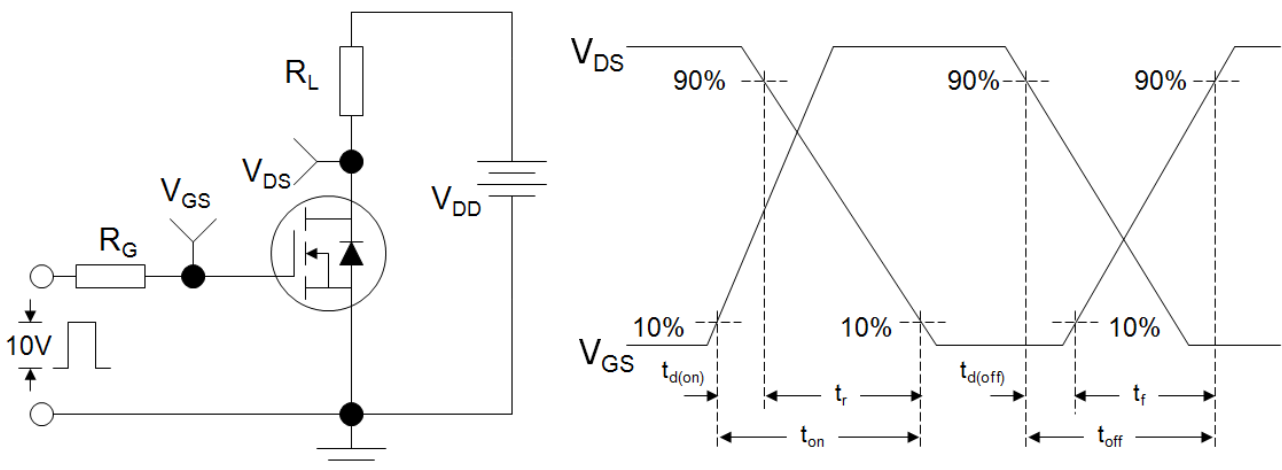
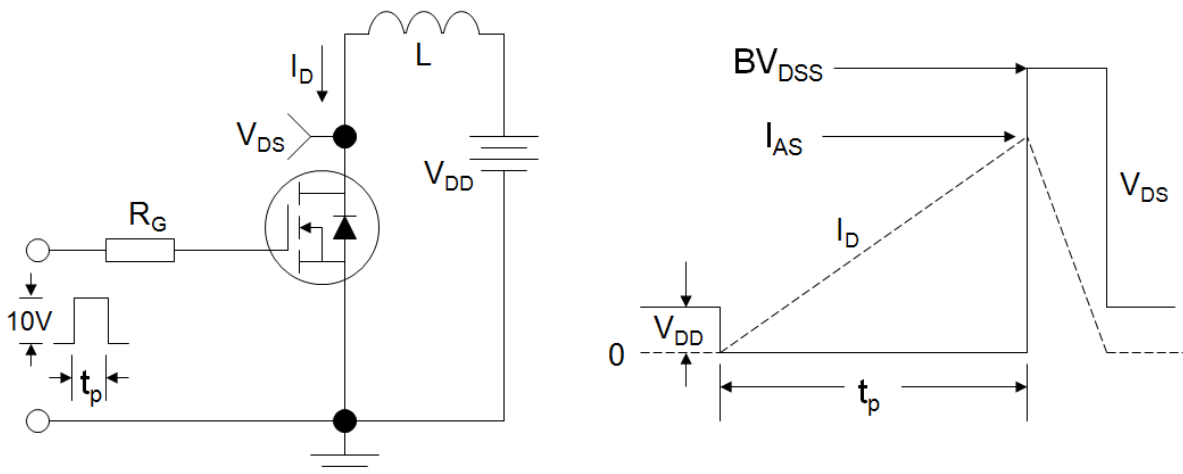
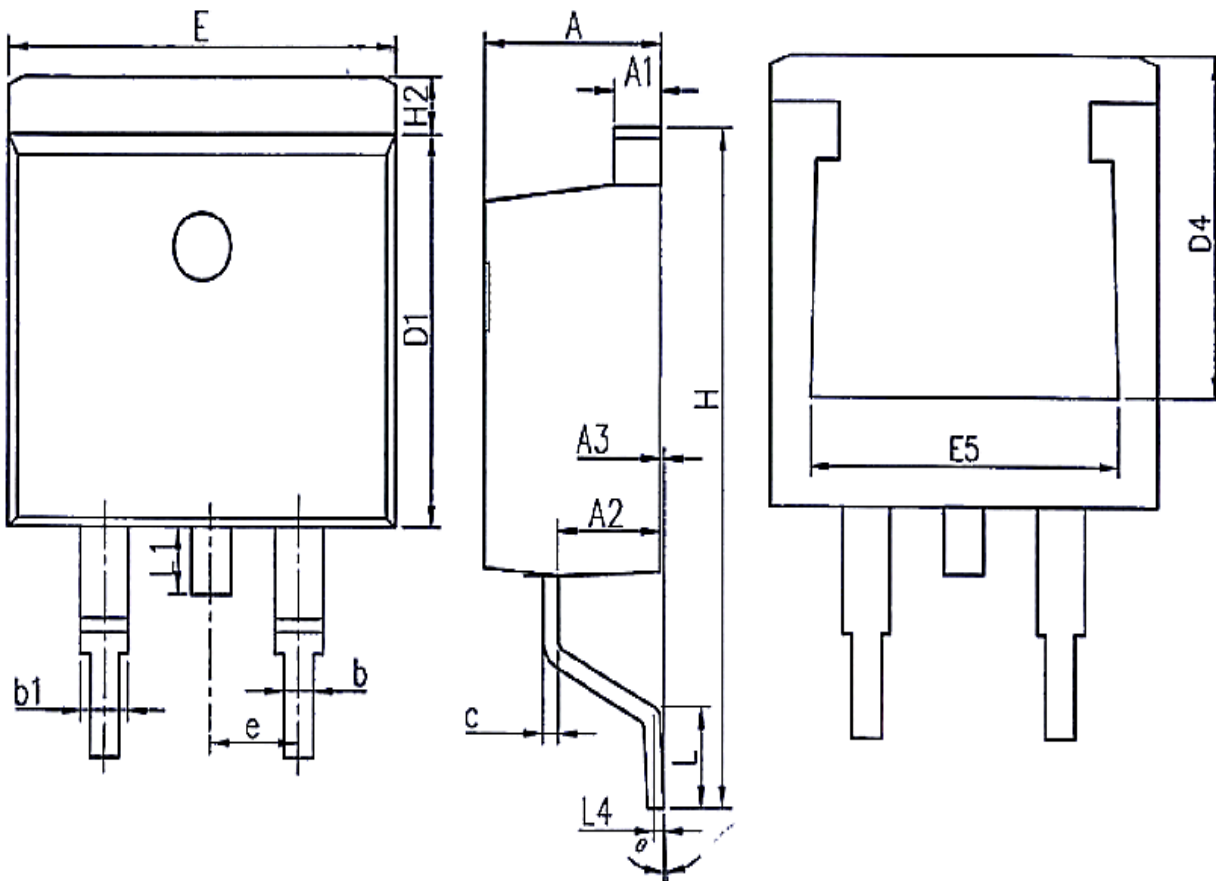


Figure C: Unclamped Inductive Switching Test Circuit and Waveform



Package Dimension

unit: mm



Unit:mm			
Symbol	Min.	Nom	Max.
A	4.37	4.57	4.77
A1	1.22	1.27	1.42
A2	2.49	2.69	2.89
A3	0.00	0.13	0.25
b	0.70	0.81	0.96
b1	1.17	1.27	1.47
c	0.30	0.38	0.53
D1	8.50	8.70	8.90
D4	6.60	-	-

Unit:mm			
Symbol	Min.	Nom	Max.
E	9.86	10.16	10.36
E5	7.06	-	-
e	2.54BSC		
H	14.70	15.10	15.50
H2	1.07	1.27	1.47
L	2.00	2.30	2.60
L1	1.40	1.55	1.70
L4	0.25BSC		
θ	0°	5°	9°

PIN Connections
 1. Gate
 2. Drain
 3. Source