



6 A 6 *) B \$ + * U 7 %

B!7 \ UbbY` Dck Yf` ACG: 9H

Î 5€Á 2 0 2 1 Á Á

8 YgW]d]jcb`

ÓT ÓÍ í Þē í UÓFÁ [, Á! ÁT UÙÒVÁ • á * Á • cá [, Á! • Á
 æçæ & á Á] ^ Á } & ç } Á & @ [[* * Á @ @ Á á á Á Á Á , Á
 [] Á • á ç æ & Á á Á æ Á @ * Á Á
 QÁ á Á [ç æ Á * & @ @ Á - á) & Á • á * Á] cá á á Á @ * Á Á
 &]] á * Á & @ [[* * Á @ @ Á • Á Á á) á] Á ç á Á • Á á Á Á Á
 æçæ ç á Á Á , Á T Á Á á) Á • Á Á Á Á Á , Á , á & @ * Á
 [• Á

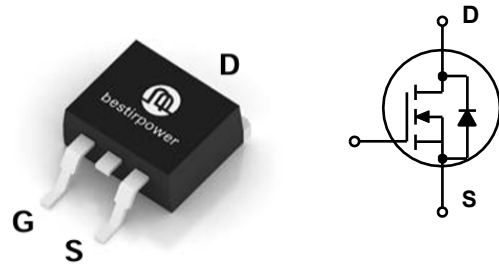
: YUhi fYg`

ÓXÓUÓD ÁV	QÁ	Üöüç) æA	Ü • Á Á
700 VÁ	52 0Á	í í Á Á	ì €Á ÓÁ

W ç æ ç á á Á á Á
 Ó ç á Á Á , Á • Á Á Á Á Á Á , Á T Ü á [] Á * Á á Á • Á
 X Á Á @ @ { { ç æ } Á * * Á á) Á • Á

5 dd`]W]jcbg`

UÓÁ [, Á É
 Ü Á ç Á [, Á Á]] É
 V Á & { É
 Ü [ç á ç Á É
 Ü] Á & @ * Á Á Á ç { [á Á • É



5 Vgc`i H`AU]a i a `FU]b[g` V/°C unless otherwise noted)

Symbol	Parameter		Value	Unit
V _{DSS}	Drain to Source Voltage ¹⁾		650	V
V _{GSS}	Gate to Source Voltage		±30	V
I _D	Drain Current ²⁾	Continuous (T _C = 25°C)	52	A
		Continuous (T _C = 125°C)	23	
I _{DM}	Drain Current	Pulsed(T _C = 25°C)	155	A
E _{AS}	Single Pulsed Avalanche Energy ³⁾		625	mJ
I _{AR}	Avalanche Current		5	A
dv/dt	MOSFET dv/dt		50	V/ns
	Peak Diode Recovery dv/dt ⁴⁾		50	
P _{tot}	Power Dissipation	(T _C = 25°C)	500	W
di/dt	Maximum diode commutation speed ⁴⁾		500	A/µs
T _J , T _{STG}	Operating and Storage Temperature Range		-55 to 150	°C
I _S	Continuous diode forward current	T _C =25°C	52	A
I _{S,pulse}	Diode pulse current ²⁾	T _C =25°C	155	A

1) Limited by T_J max. Maximum duty cycle D=0.75.
 2) Pulse width t_p limited by T_J,max.
 3) V_{DD}=50V, R_G=25Ω, Starting T_J=25°C.
 4) V_{DClink}=400V; V_{DS,peak}<V_{(BR)DSS}; identical low side and high side switch with identical R_G.

Thermal Characteristics

Symbol	Parameter	Value	Unit
$R_{\theta JC}$	Thermal Resistance, Junction to Case, Max.	0.25	°C/W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient, Max.	62	
T_{sold}	Soldering temperature, wavesoldering only allowed at leads	260	°C

Part Number	Top Marking	Package	Packing Method	Quantity
BMB65N076UC1	BMB65N076UC1	TO-263(D ² PAK)	Tape & Reel	800 units

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

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
--------	-----------	-----------------	-----	-----	-----	------

Off Characteristics

BV_{DSS}	Drain to Source Breakdown Voltage	$V_{GS} = 0\text{ V}, I_D = 1\text{ mA}$	650	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = 650\text{ V}, V_{GS} = 0\text{ V}, T_J = 25^\circ\text{C}$	-	-	10	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS} = \pm 30\text{ V}, V_{DS} = 0\text{ V}$	-	-	±100	nA

On Characteristics

$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS} = V_{DS}, I_D = 1\text{ mA}$	3.0	4.0	5.0	V
$R_{DS(on)}$	Static Drain to Source On Resistance	$V_{GS} = 10\text{ V}, I_D = 23\text{ A}, T_J = 25^\circ\text{C}$	-	70	76	mΩ
R_G	Gate resistance	$V_{DD} = 0\text{ V}, V_{GS} = 0\text{ V}, F = 1\text{ MHz}$	-	3.5	-	Ω

Dynamic Characteristics

C_{iss}	Input Capacitance	$V_{GS} = 0\text{ V}, V_{DS} = 50\text{ V}, f = 250\text{ kHz}$	-	3440	-	pF
C_{oss}	Output Capacitance		-	162	-	pF
$C_{o(tr)}$	Time Related Output Capacitance ¹⁾	$V_{DS} = 0\text{ to }400\text{ V}, V_{GS} = 0\text{ V}$	-	557	-	pF
$C_{o(er)}$	Energy Related Output Capacitance ²⁾		-	107	-	pF
$Q_{g(tot)}$	Total Gate Charge at 10 V	$V_{DD} = 400\text{ V}, I_D = 23\text{ A}, V_{GS} = 0\text{ to }10\text{ V}$	-	80	-	nC
Q_{gs}	Gate to Source Charge		-	19	-	nC
Q_{gd}	Gate to Drain "Miller" Charge		-	34	-	nC
$V_{plateau}$	Gate plateau voltage		-	6	-	V

Switching Characteristics

$t_{d(on)}$	Turn-On Delay Time	$V_{DD} = 400\text{ V}, I_D = 23\text{ A}, V_{GS} = 10\text{ V}$	-	85	-	ns
t_r	Turn-On Rise Time		-	14	-	ns
$t_{d(off)}$	Turn-Off Delay Time		-	130	-	ns
t_f	Turn-Off Fall Time		-	14	-	ns

Source-Drain Diode Characteristics

V_{SD}	Diode Forward Voltage	$V_{GS} = 0\text{ V}, I_F = 23\text{ A}, T_f = 25^\circ\text{C}$	-	0.89	-	V
t_{rr}	Reverse Recovery Time	$V_R = 400\text{ V}, I_F = 23\text{ A}, di_F/dt = 100\text{ A}/\mu\text{s}$	-	145	-	ns
Q_{rr}	Reverse Recovery Charge		-	1.15	-	μC
I_{rrm}	Peak reverse recovery current		-	14	-	A

- 1) $C_{o(tr)}$ is a fixed capacitance that gives the same charging time as C_{oss} while V_{DS} is rising from 0 to 400V.
 2) $C_{o(er)}$ is a fixed capacitance that gives the same stored energy as C_{oss} while V_{DS} is rising from 0 to 400V.

Typical Performance Characteristics

Figure 1. Power dissipation

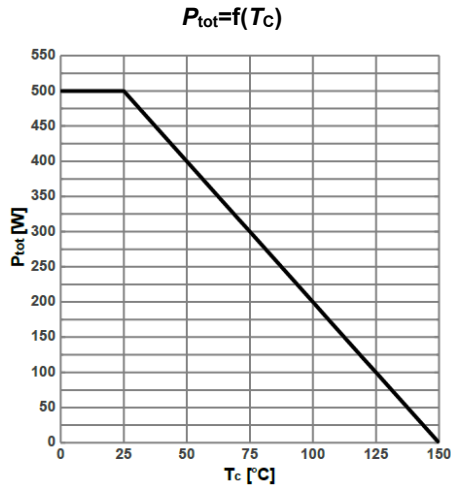


Figure 2. Max. transient thermal impedance

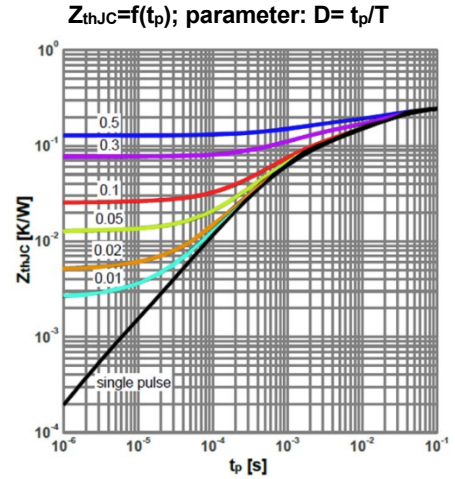


Figure 3. Safe operating area

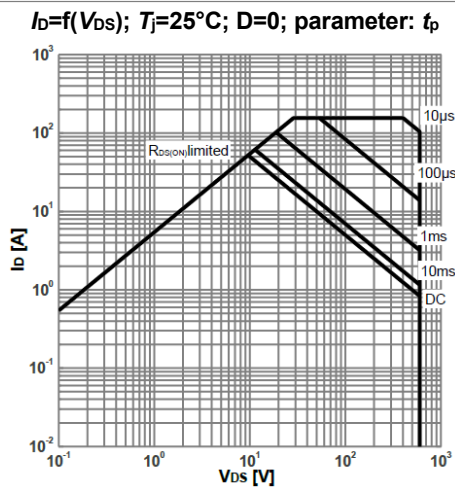


Figure 4. Typ. Output characteristics

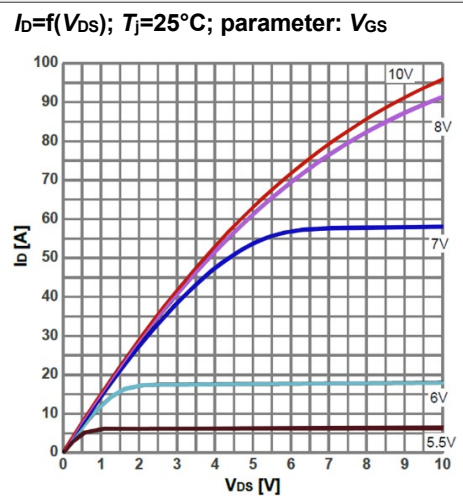


Figure 5. Typ. Output characteristics

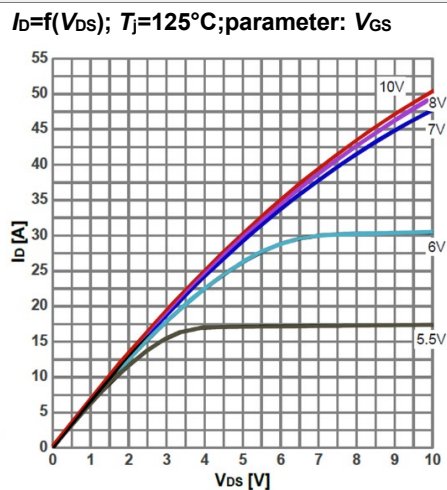
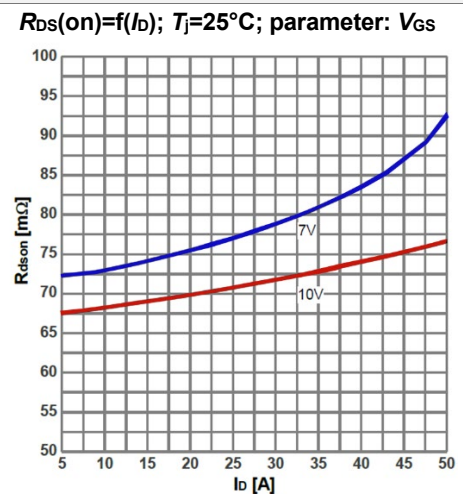


Figure 6. Typ. drain-source on-state resistance



Typical Performance Characteristics

Figure 7. Typ. drain-source on-state resistance

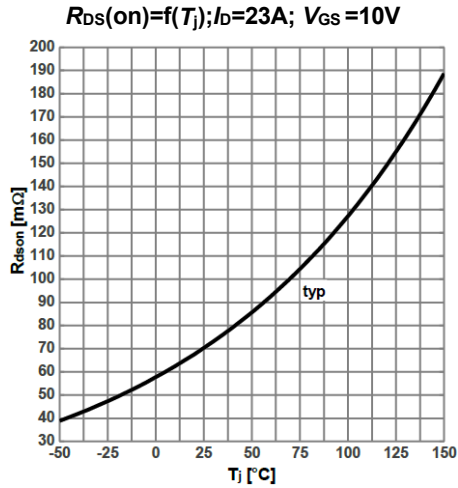


Figure 8. Typ. transfer characteristics

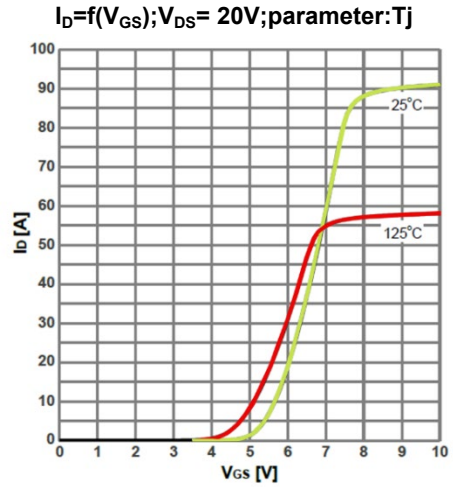


Figure 9. Typ. gate charge

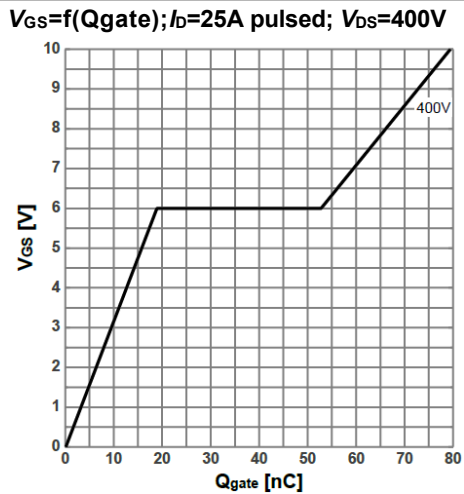


Figure 10. Typ. forward characteristics of reverse diode

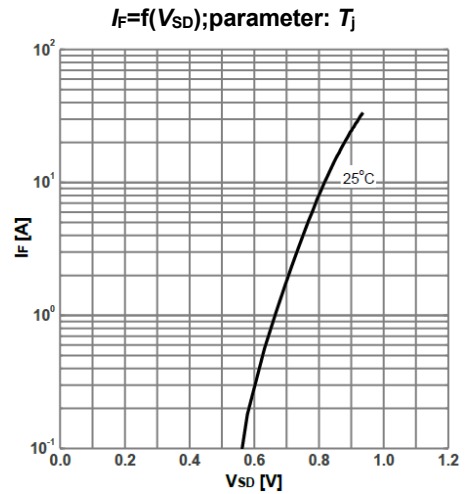


Figure 11. Typ. drain-source breakdown voltage

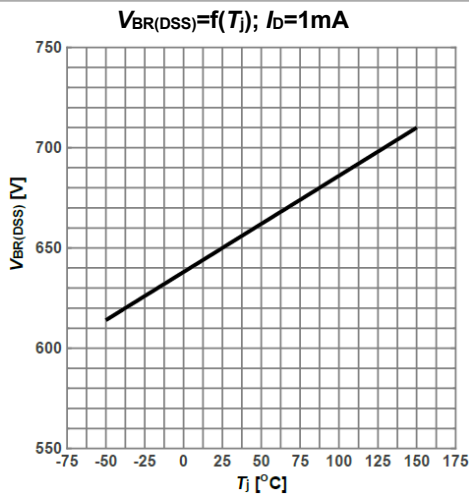
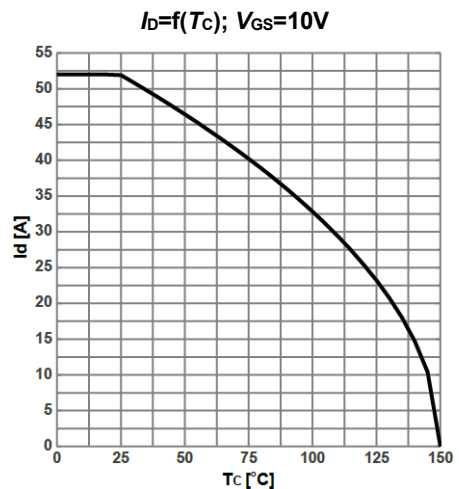


Figure 12. Maximum drain current



Typical Performance Characteristic

Figure 13. Typ. Capacitances

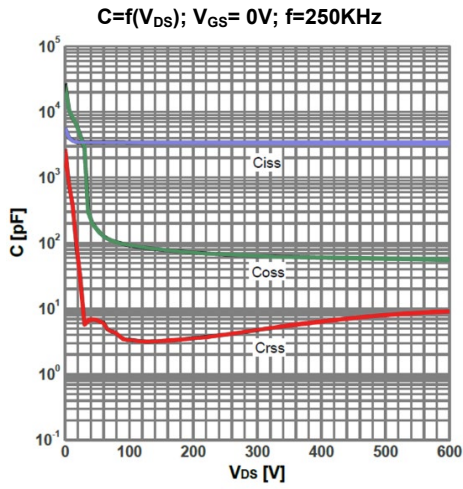
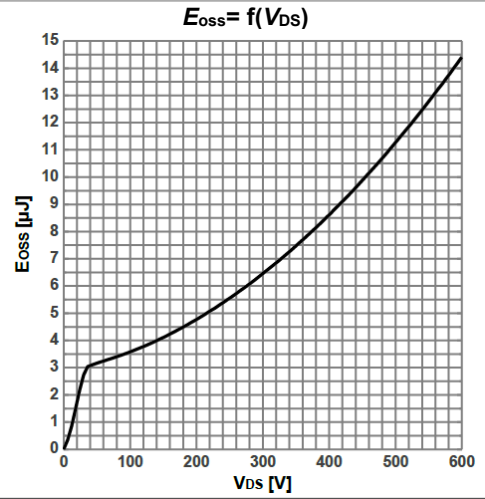


Figure 14. Typ. coss stored energy



Test Circuits

Figure 15. Diode Characteristics

Test circuit for diode characteristics and Diode recovery waveform

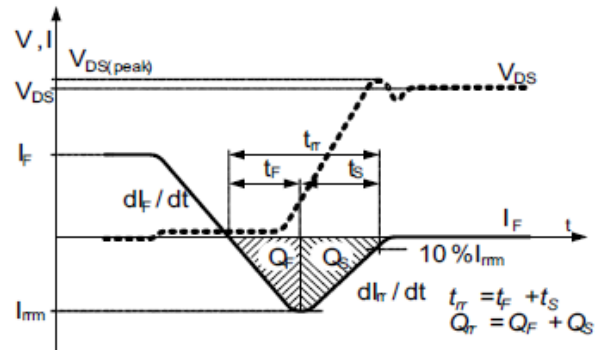
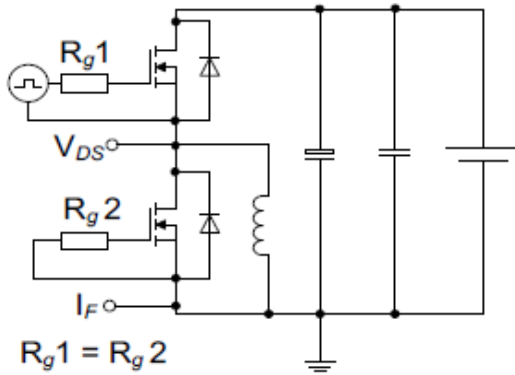


Figure 16. Switching Times

Switching times test circuit for inductive load and Switching times waveform

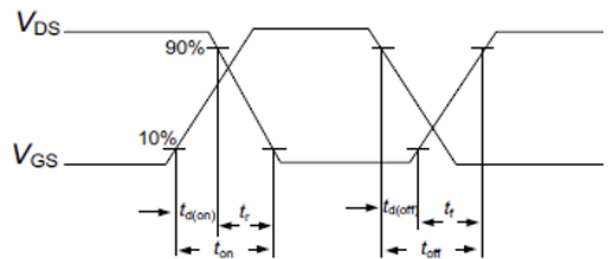
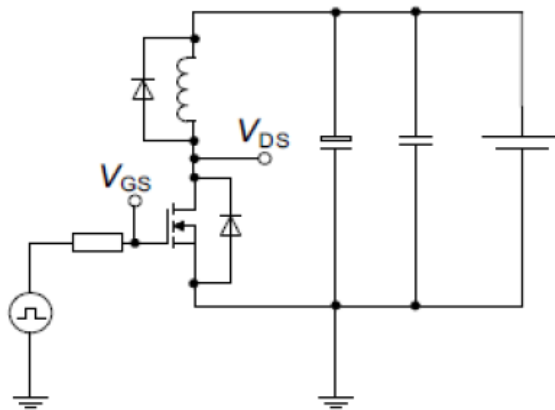
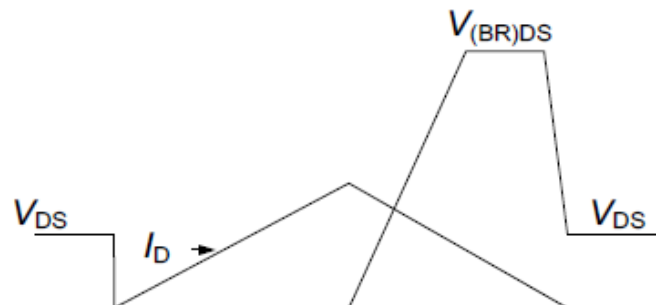
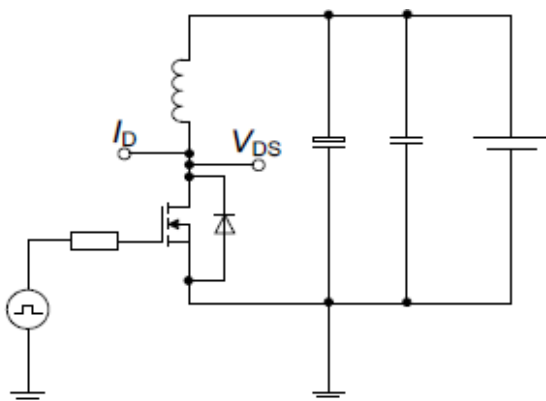


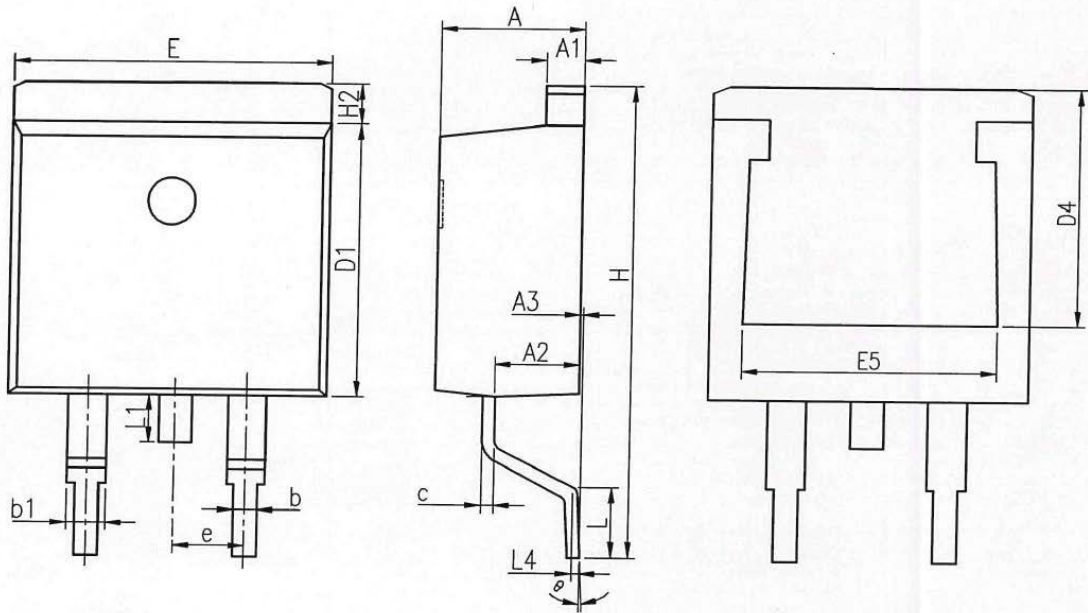
Figure 17. Unclamped Inductive Load

Unclamped inductive load test circuit and Unclamped inductive waveform



Package Outlines

TO263-2L



COMMON DIMENSIONS

SYMBOL	MM		
	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	-	-
E	9.86	10.16	10.36
E5	7.06	-	-
e	2.54 BSC		
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	0.25 BSC		
θ	0°	5°	9°

* Dimensions in millimeters

Disclaimer

Bestirpower reserve the right to make changes, corrections, enhancements, modifications, and improvements to Bestirpower products and/or to this document at any time without notice.

The information given in this document shall in no event be regarded as a guarantee of conditions or characteristics. Bestirpower does not assume any liability for infringement of patents, copyrights, or other intellectual property rights of third parties by or arising from the use of Products or technical information described in this document.

This document is the property of Bestirpower Co., LTD., and not allowed to copy or transformed to other format if not under the authority approval.

© 2024 bestirpower – All rights Reserved