

Product Summary

Part #	V_{DS}	$R_{DS(on)}$	I_D ($T_{vj}=25^{\circ}C$)
DPM065R035T8G1	650V	28m Ω	74A

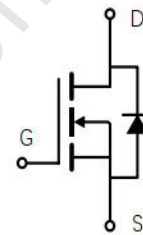
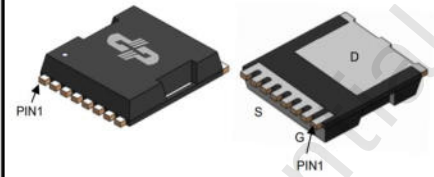
Features

- High Speed Switching with Low Capacitances
- High Blocking Voltage with Low $R_{DS(on)}$
- Easy to parallel
- RoHS Compliant

Applications

- General purpose drives
- Energy storage systems
- String inverter
- Uninterruptible power supplies

TOLL


Package Marking and Ordering Information

Part #	Marking	Package	Packing
DPM065R035T8G1	M065R035T8	TOLL	Tape/Reel



Halogen-Free

Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Drain-source voltage	V_{DS}	650	V
Continuous drain current ($V_{GS}=18V$)	I_D	74	A
$T_C = 25^{\circ}C$		74	
$T_C = 100^{\circ}C$		52	
Pulsed drain current ($T_C = 25^{\circ}C$, t_p limited by T_{jmax})	$I_{D\ pulse}$	222	A
Gate-source voltage, max. transient voltage	V_{GSmax}	-8/+22	V
Gate-source voltage, max. static voltage	V_{GSop}	-4/+18	V
Power dissipation ($T_C = 25^{\circ}C$)	P_{tot}	185	W
Power dissipation ($T_C = 100^{\circ}C$)		93	
Operating junction temperature	T_j	-40...+175	$^{\circ}C$
Storage temperature	T_{stg}	-40...+150	$^{\circ}C$

Thermal Resistance

Parameter	Symbol	Max	Unit
Thermal resistance, junction – mounting base	R_{thMB}	0.8	°C/W

Electrical Characteristic (at $T_j = 25^\circ\text{C}$, unless otherwise specified)

Parameter	Symbol	Value			Unit	Test Condition
		min.	typ.	max.		

Static Characteristic

Drain-source breakdown voltage	BV_{DSS}	650	-	-	V	$V_{GS}=0V, I_D=250\mu A$
Gate threshold voltage	$V_{GS(th)}$	2	2.6 1.9	4	V	$V_{DS}=V_{GS}, I_D=10mA$ $T_j=25^\circ\text{C}$ $T_j=175^\circ\text{C}$
Zero gate voltage drain current	I_{DSS}	-	1	10	μA	$V_{DS}=650V, V_{GS}=0V$ $T_j=25^\circ\text{C}$
Gate-source leakage current	I_{GSS}	-	-	250	nA	$V_{GS}=18V, V_{DS}=0V$
Drain-source on-state resistance	$R_{DS(on)}$	-	28 34	36	m Ω	$V_{GS}=18V, I_D=30A$ $T_j=25^\circ\text{C}$ $T_j=175^\circ\text{C}$
Gate resistance	R_g	-	4	-	Ω	$V_{GS}=0V, V_{DS}=0V,$ $f=1MHz$

Dynamic Characteristic^[2]

Input Capacitance	C_{iss}	-	2235	-	pF	$V_{GS}=0V, V_{DS}=600V,$ $f=1MHz$
Output Capacitance	C_{oss}	-	199	-		
Reverse Transfer Capacitance	C_{rss}	-	12	-		
Gate Total Charge	Q_g	-	105	-	nC	$V_{GS}=-4/18V, V_{DS}=400V,$ $I_D=30A, f=1MHz$
Gate-Source charge	Q_{gs}	-	28	-		
Gate-Drain charge	Q_{gd}	-	32	-		
Turn-on delay time	$t_{d(on)}$	-	14	-	ns	$V_{GS}=-4/18V, I_D=30A,$ $V_{DD}=400V, R_{G_ext}=2.5\Omega$ $L=200\mu H$
Rise time	t_r	-	17	-		
Turn-off delay time	$t_{d(off)}$	-	28	-		
Fall time	t_f	-	7	-		
Turn-On Energy	E_{on}	-	87	-	μJ	
Turn-Off Energy	E_{off}	-	25	-		

Body Diode Characteristic

Parameter	Symbol	Value			Unit	Test Condition
		min.	typ.	max.		
Body Diode Forward Voltage	V_{SD}	-	4.2 3.6	6.3	V	$V_{GS} = -4V, I_{SD} = 30A$ $T_j = 25^\circ C$ $T_j = 175^\circ C$
Diode continuous forward current	I_s		37 20	- -	A	$V_{GS} = -4V$ $T_C = 25^\circ C$ $T_C = 100^\circ C$
Diode Peak reverse recovery Current	I_{rrm}	-	9	-	A	$V_{GS} = -4V, V_R = 400V$ $I_{SD} = 30A, dI/dt = 1797A/\mu s$
Body Diode Reverse Recovery Time ^[2]	t_{rr}	-	18	-	ns	
Body Diode Reverse Recovery Charge ^[2]	Q_{rr}	-	235	-	nC	

[2]. Defined by design. Not subject to production test

Typical Performance Characteristics

Fig 1: Output Characteristics

$T_j = -40^\circ\text{C}$

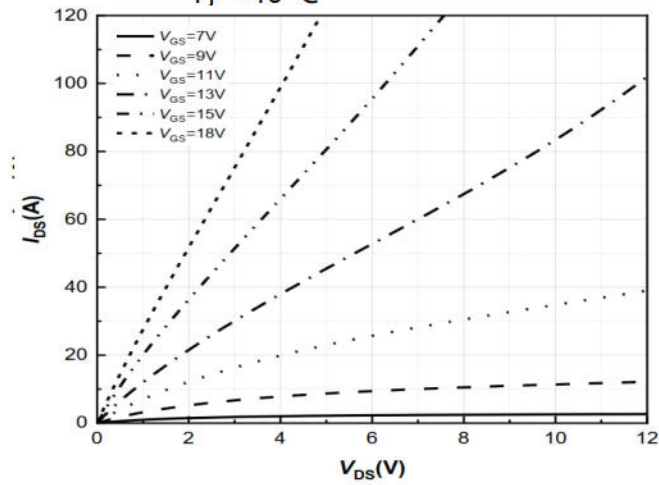


Fig 2: Output Characteristics

$T_j = 25^\circ\text{C}$

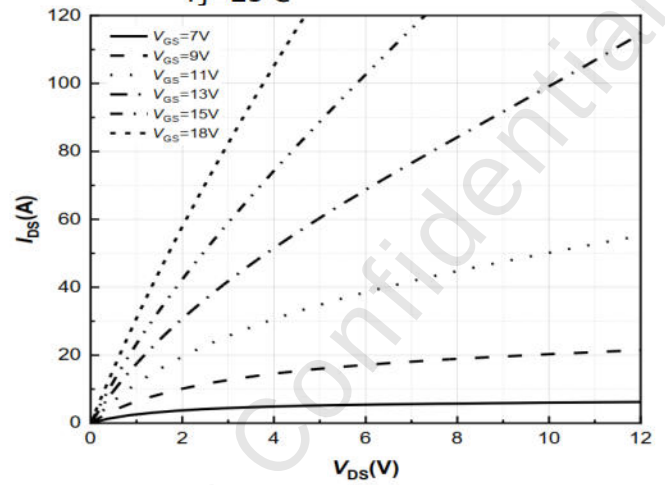


Fig 3: Output Characteristics

$T_j = 175^\circ\text{C}$

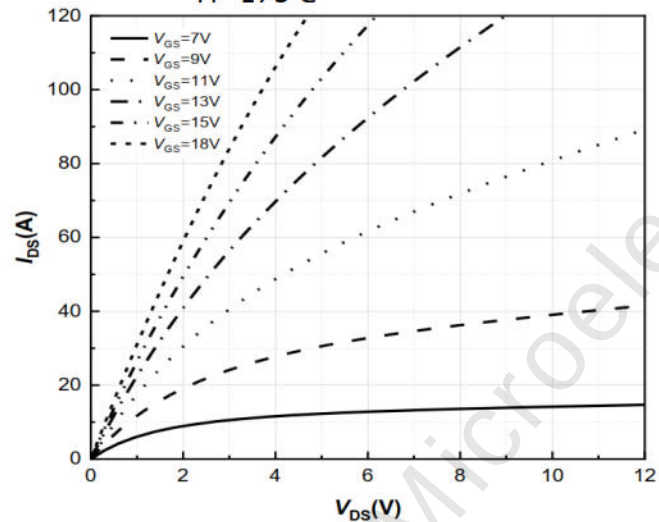


Fig 4: $R_{ds(on)}$ vs Temperature

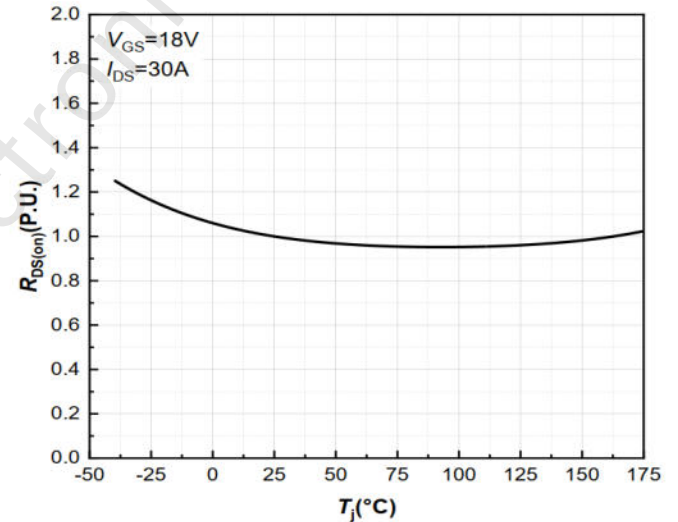


Fig 5: $R_{ds(on)}$ vs Drain Current for various Temperature

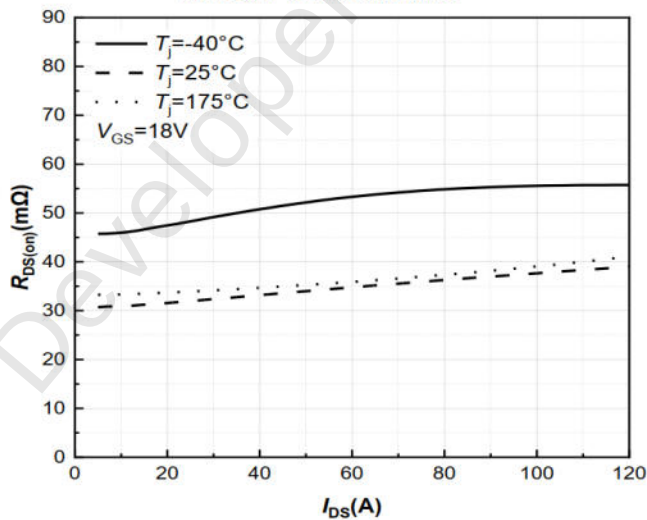
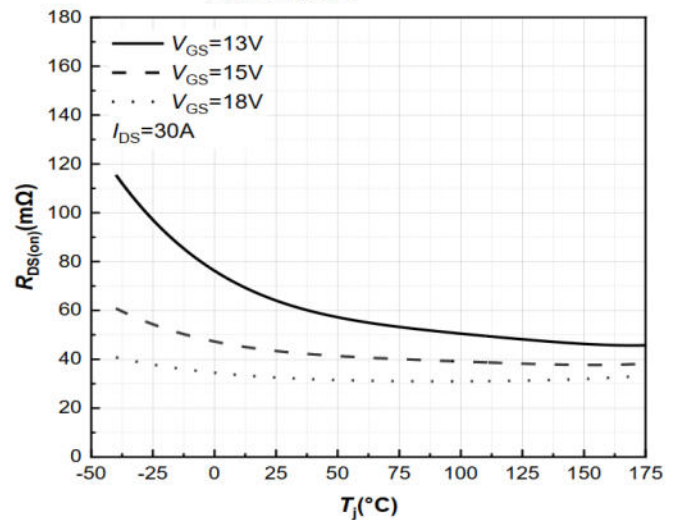


Fig 7: $R_{ds(on)}$ vs. Gate Voltage at Temperature



Typical Performance Characteristics

Fig 7: Transfer Characteristics

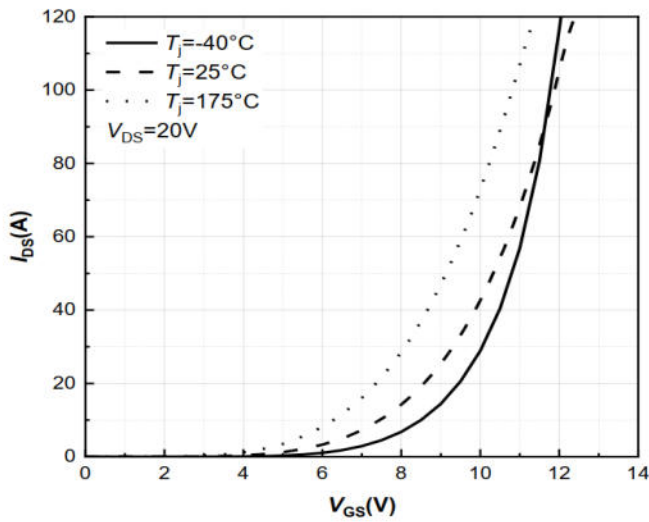


Fig 8: Body Diode Characteristic $T_J = -40^\circ C$

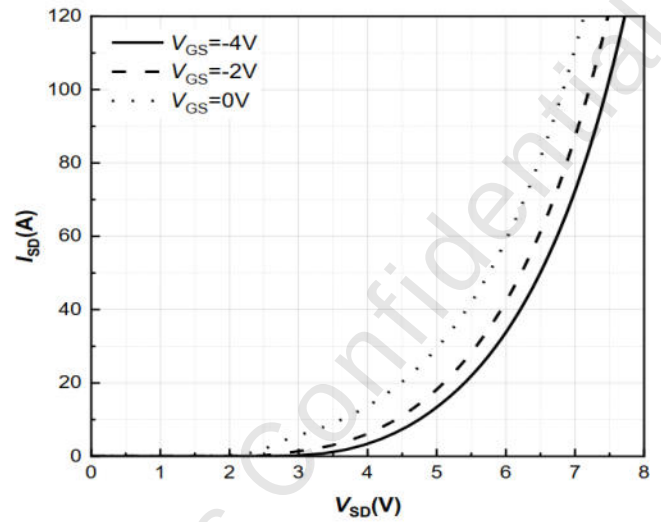


Fig 9: Body Diode Characteristic
 $T_J = 25^\circ C$

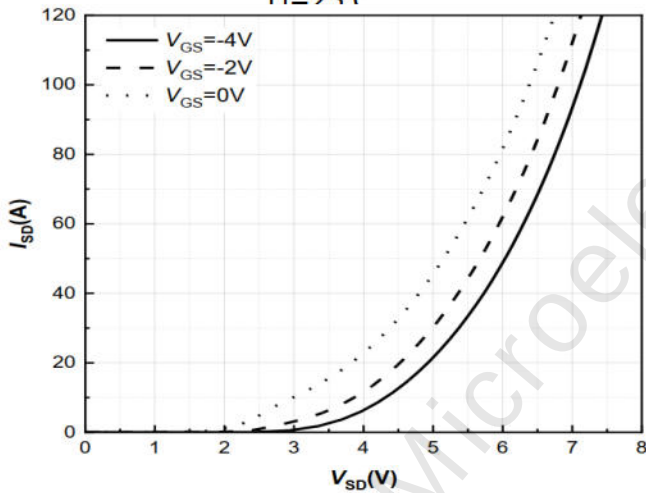


Fig 10: Body Diode Characteristic
 $T_J = 175^\circ C$

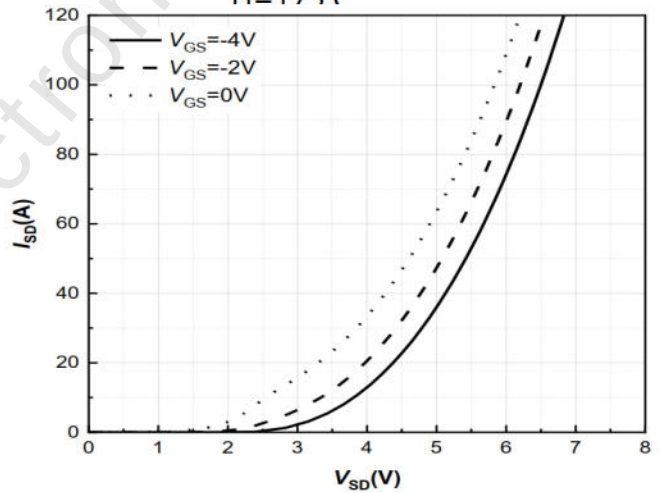


Fig 11: Threshold Voltage vs. Temperature

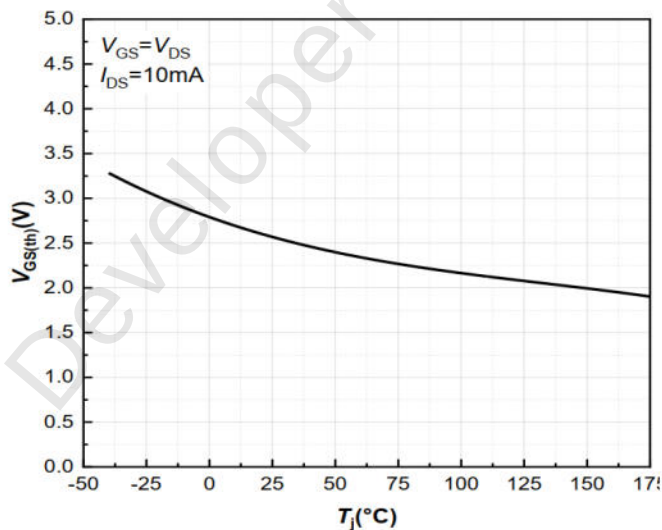


Fig 12: Capacitance Characteristics

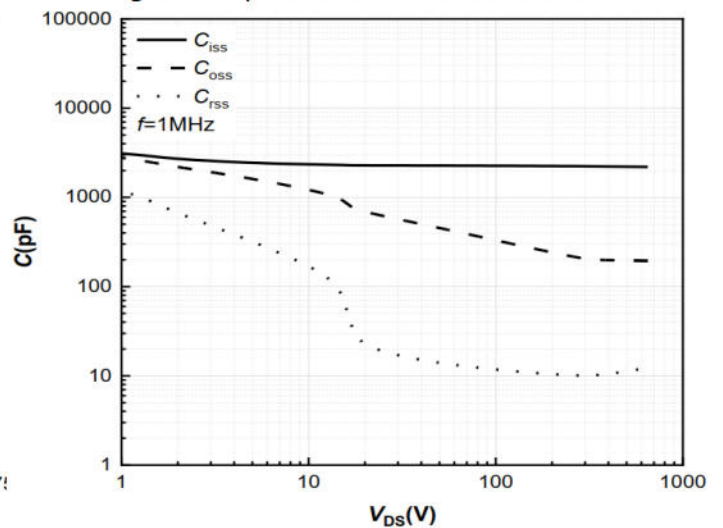


Fig 13: Gate Charge Characteristics

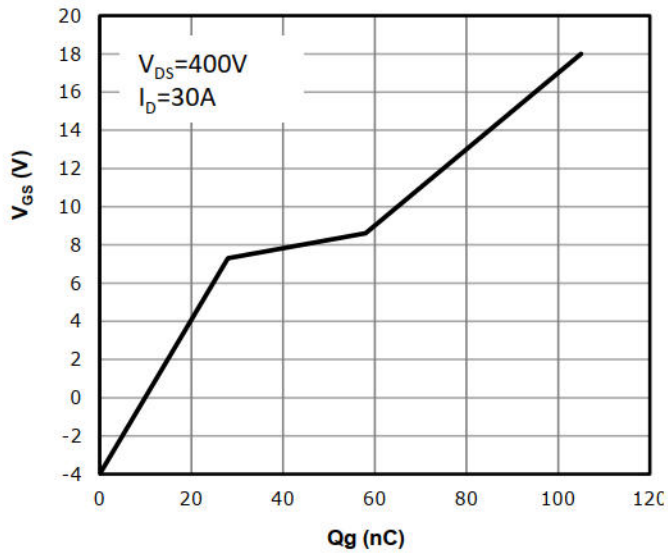


Fig 14: Clamped Inductive Switching energy vs R_g

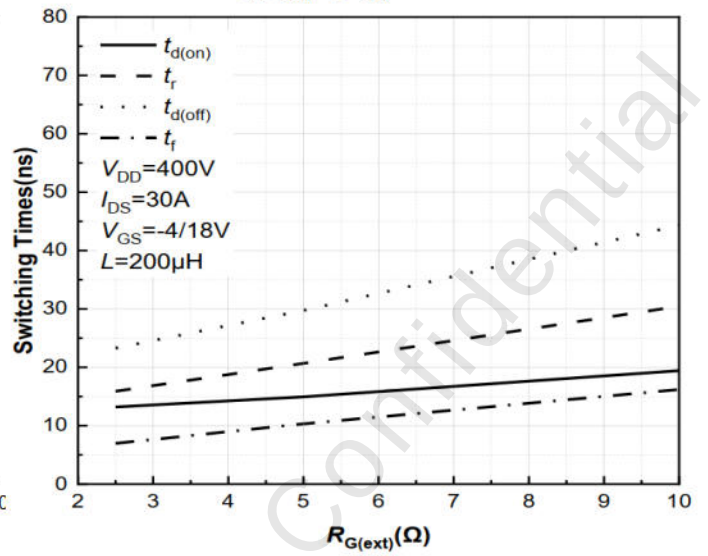


Fig 15: Power Dissipation

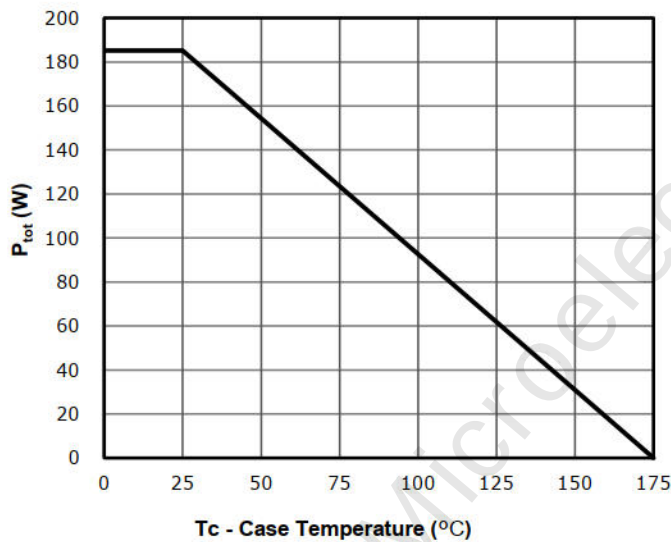


Fig 16: Drain Current Derating

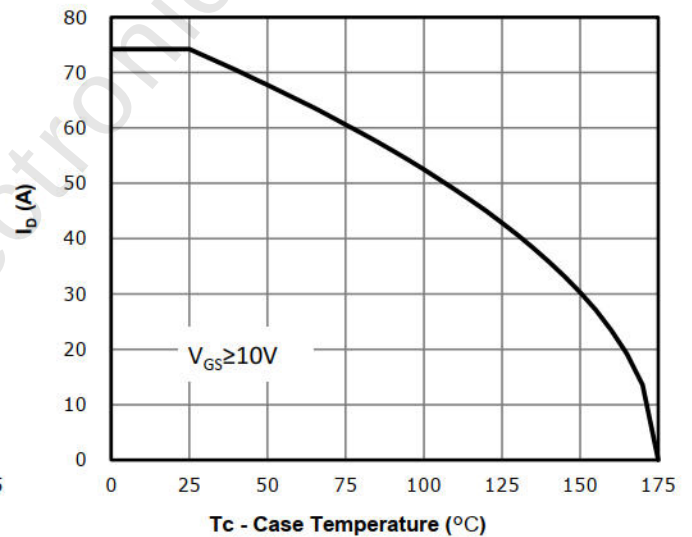


Fig 17: Safe Operating Area

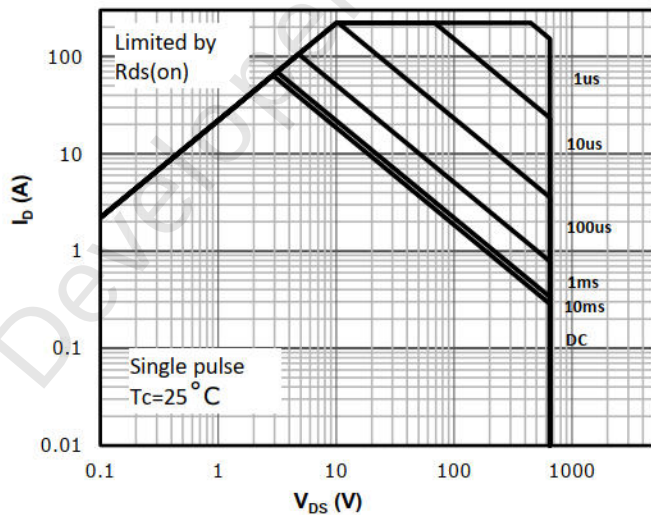
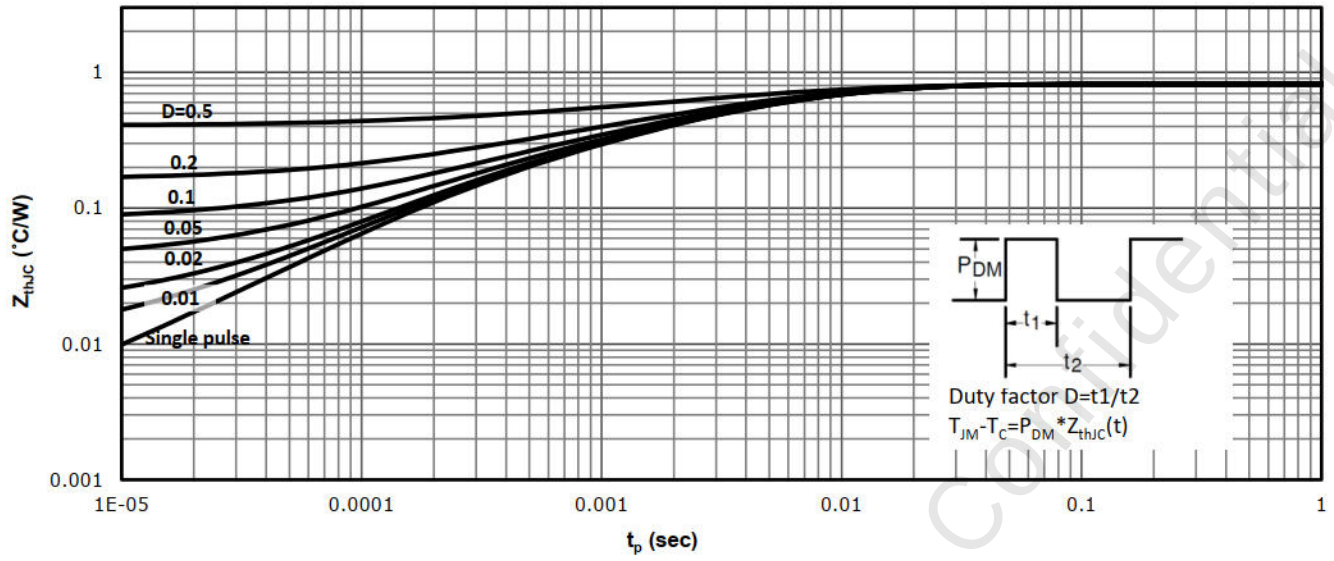
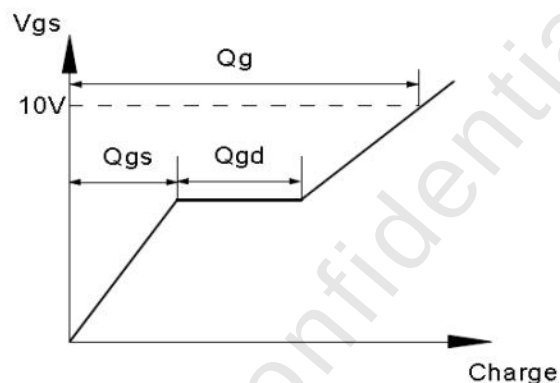
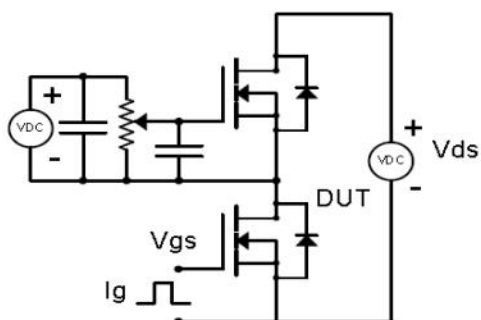


Fig 18: Max. Transient Thermal Impedance

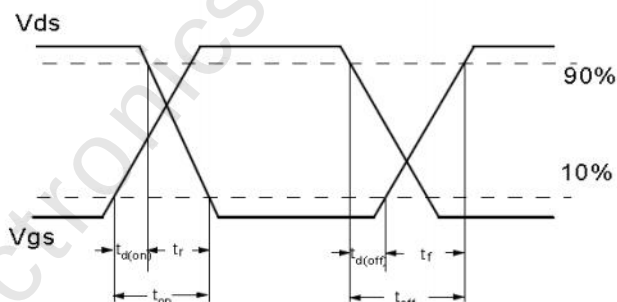
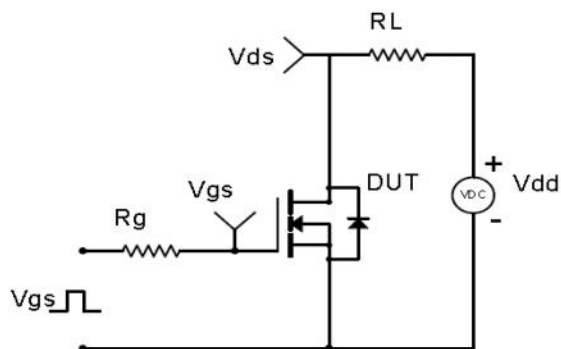


Test Circuit & Waveform

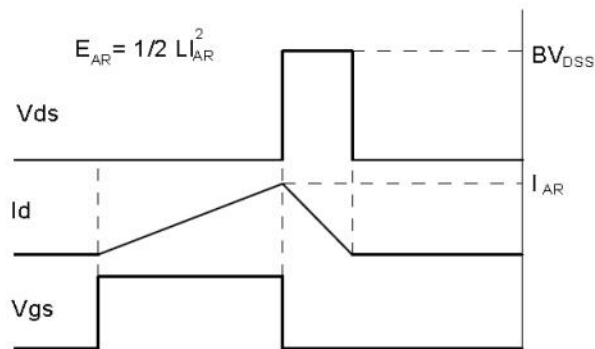
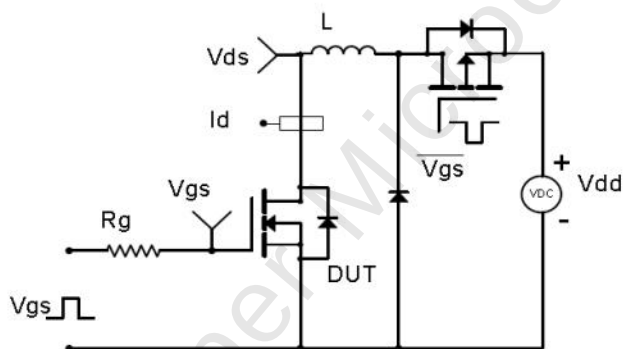
Gate Charge Test Circuit & Waveform



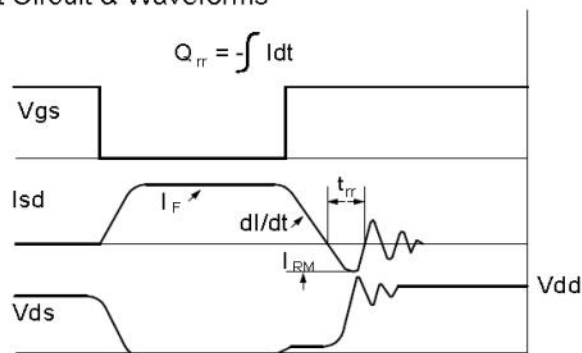
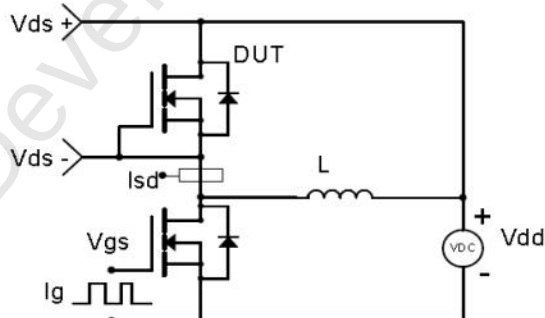
Resistive Switching Test Circuit & Waveforms



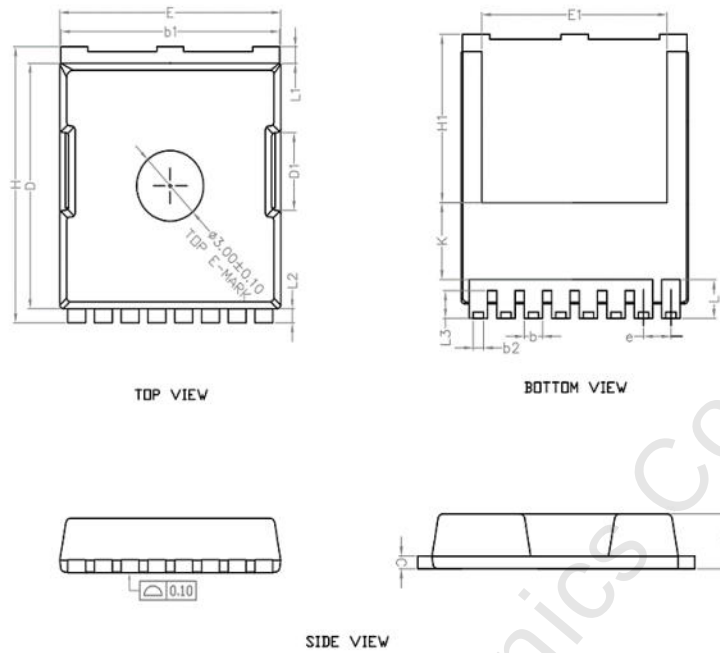
Unclamped Inductive Switching (UIS) Test Circuit & Waveforms



Diode Recovery Test Circuit & Waveforms

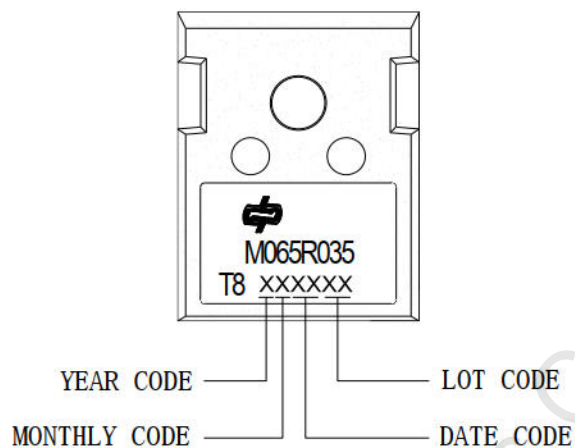


Package Outline: TOLL



Symbol	Common Dimensions In		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.20	2.40	0.09	0.09
b	0.70	0.90	0.03	0.04
b1	9.70	9.90	0.38	0.39
b2	0.40	0.50	0.02	0.02
c	0.40	0.60	0.02	0.02
D	10.28	10.58	0.40	0.42
D1	3.15	3.45	0.12	0.14
E	9.70	10.10	0.38	0.40
E1	7.90	8.30	0.31	0.33
e	1.10	1.30	0.04	0.05
H	11.48	11.88	0.45	0.47
H1	6.75	7.15	0.27	0.28
K	3.03	3.33	0.12	0.13
L	1.50	1.70	0.06	0.07
L1	0.55	0.85	0.02	0.03
L2	0.45	0.75	0.02	0.03
L3	1.00	1.30	0.04	0.05

Part Marking Information



Revision History

Revision	Major changes
0.5	Release for formal version0.5

重要声明Important Notice

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