Features

- Uses CRM(CQ) advanced SkyMOS4 technology
- Extremely low on-resistance $R_{DS(on)}$
- Excellent Q_gx$R_{DS(on)}$ product(FOM)
- AEC-Q101 Qualified

Product Summary

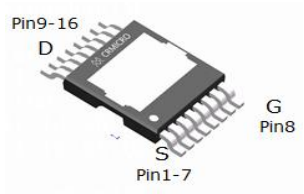
V_{DS}	100V
$R_{DS(on).typ}$	1.2mΩ
I_D	370A

100% DVDS Tested
100% Avalanche Tested

Applications

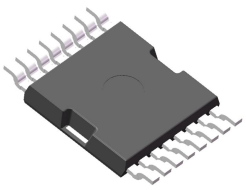
- DCDC Converter
- Switching applications

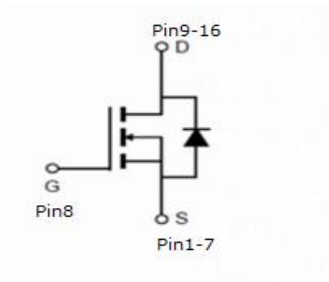
Top View



CRSZT016N10N4Q

Bottom View





Package Marking and Ordering Information

Part #	Marking	Package	Packing	Reel Size	Tape Width	Qty
CRSZT016N10N4Q	CRSZT016N10N4Q	TOLT	Tape&Reel	N/A	N/A	1800pcs

Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Drain-source voltage	V_{DS}	100	V
Continuous drain current T_C = 25°C (Silicon limit) T_C = 100°C (Silicon limit)	I_D	 420 300	A
Pulsed drain current (T_C = 25°C, t_p limited by T_{jmax})	$I_{D\,pulse}$	1480	A
Avalanche energy, single pulse (I_D = 88A, Rg=25Ω)[1]	E_{AS}	1936	mJ
Gate-Source voltage	V_{GS}	±20	V
Power dissipation (T_C = 25°C)	P_{tot}	530	W
Operating junction and storage temperature	T_j , T_{stg}	-55...+175	°C
Soldering temperature, wave soldering only allowed at leads (1.6mm from case for 10s)	Tsold	260	°C

※. Notes:
EAS is tested at starting Tj = 25℃, L =0.5mH, IAS =88A, VGS = 10V.

Thermal Resistance

Parameter	Symbol	Max	Unit
Thermal resistance, junction – case.	R_{thJC}	0.28	°C/W
Thermal resistance, junction – ambient(min. footprint)	R_{thJA}	39	

Electrical Characteristic (at Tj = 25 °C, unless otherwise specified)

Parameter	Symbol	Value			Unit	Test Condition
		min.	typ.	max.		
Static Characteristic						
Drain-source breakdown voltage	BV_{DSS}	100	-	-	V	V_{GS}=0V, I_D=250uA
		100	-	-	V	V_{GS}=0V, I_D=1mA
Gate threshold voltage	$V_{GS(th)}$	2.0	3.0	4.0	V	V_{DS}=V_{GS},I_D=250uA
Zero gate voltage drain current	I_{DSS}	- -	- -	1 100	μA	V_{DS}=100V,V_{GS}=0V T_j=25°C T_j=125°C
Gate-source leakage current	I_{GSS}	-	-	±100	nA	V_{GS}=±20V,V_{DS}=0V
Drain-source on-state resistance	$R_{DS(on)}$	-	1.2	1.6	mΩ	VGS=10V, ID=100A
Transconductance	g_{fs}	-	356	-	S	VDS=5V,ID=100A
Dynamic Characteristic						
Input Capacitance	C_{iss}	-	13087	-	pF	V_{GS}=0V, V_{DS}=50V, f=1MHz
Output Capacitance	C_{oss}	-	2156	-		
Reverse Transfer Capacitance	C_{rss}	-	40	-		
Gate Total Charge	Q_G	-	193	-	nC	V_{GS}=10V, V_{DS}=50V, I_D=100A, f=1MHz
Gate-Source charge	Q_{gs}	-	76	-		
Gate-Drain charge	Q_{gd}	-	26	-		
Turn-on delay time	$t_{d(on)}$	-	40	-	ns	V_{GS}=10V, V_{DD}=50V, R_{G_ext}=3Ω
Rise time	t_r	-	79	-		
Turn-off delay time	$t_{d(off)}$	-	105	-		
Fall time	t_f	-	43	-		
Gate resistance	R_G	-	1.5	-	Ω	V_{GS}=0V, V_{DS}=0V, f=1MHz

Body Diode Characteristic

Parameter	Symbol	Value			Unit	Test Condition
		min.	typ.	max.		
Diode continous forward current	Is	-	-	370	A	Tc = 25°C
Diode pulse current	Is pulse	-	-	1480	A	Tc = 25°C
Body Diode Forward Voltage	V_{SD}	-	0.8	1.4	V	V_{GS}=0V,I_{SD}=100A
Body Diode Reverse Recovery Time	t_{rr}	-	107	-	ns	V_R=50V,I_F=100A,dI/dt=100 A/μs
Body Diode Reverse Recovery Charge	Q_{rr}	-	353	-	nC	

Typical Performance Characteristics

Fig 1: Output Characteristics

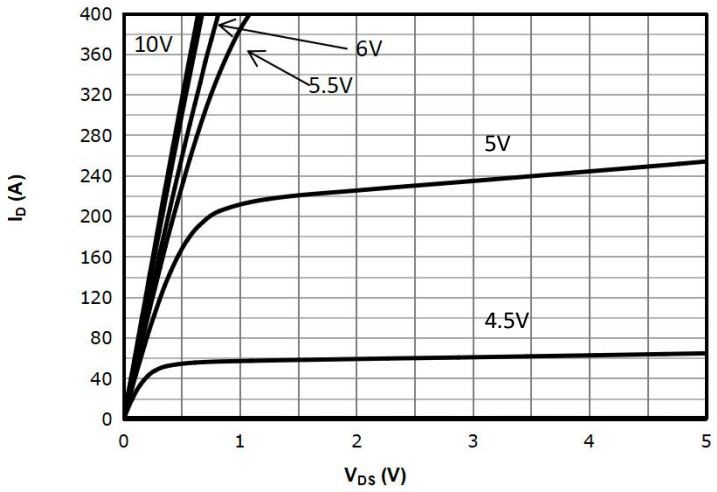


Fig 2: Transfer Characteristics

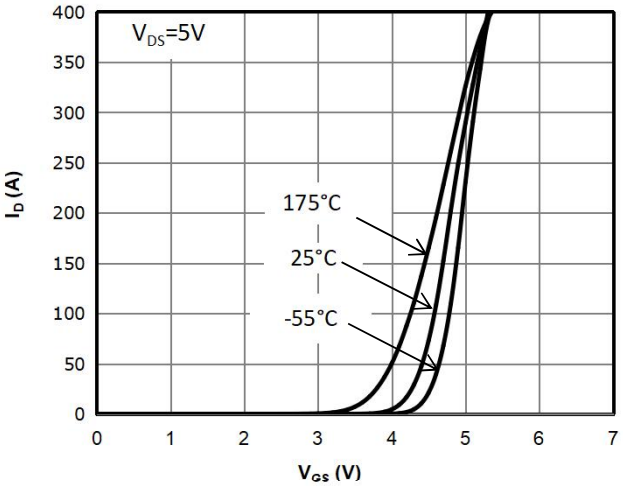


Fig 3: Rds(on) vs Drain Current and Gate Voltage

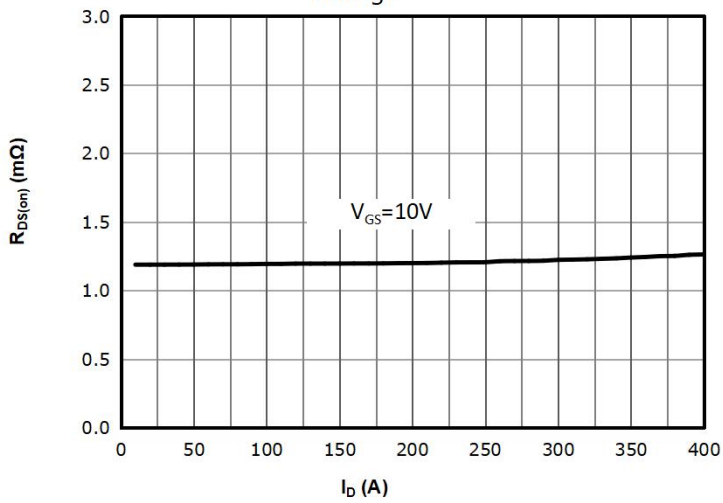


Fig 4: Rds(on) vs Gate Voltage

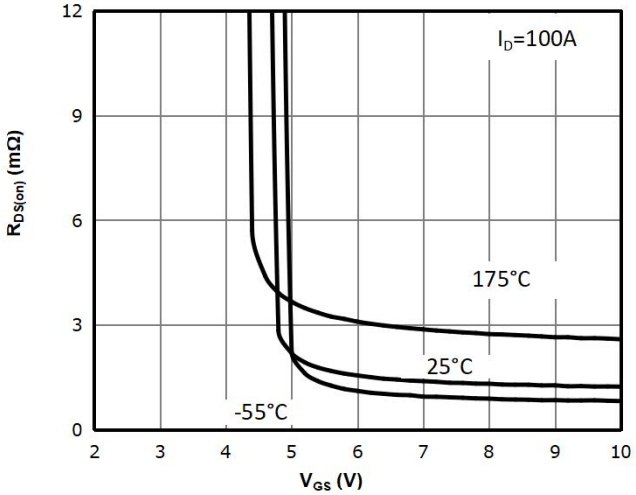


Fig 5: Rds(on) vs. Temperature

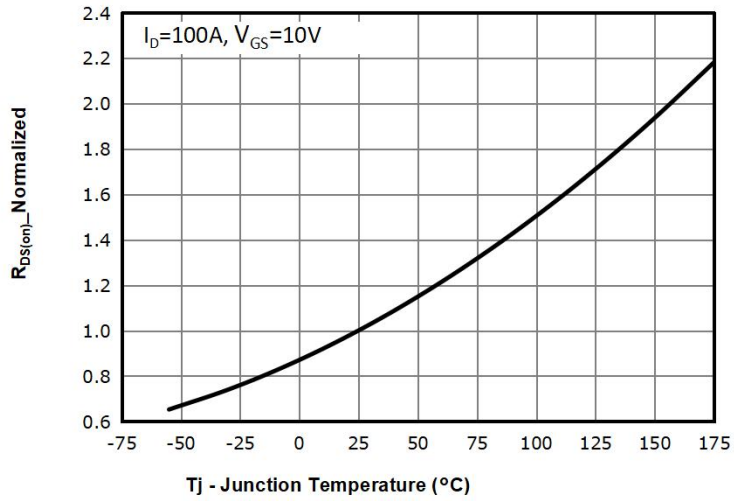


Fig 6: Vgs(th) vs. Temperature

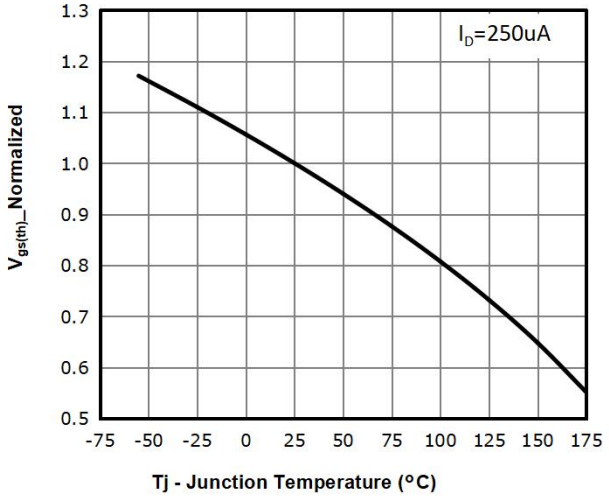


Fig 7: BVdss vs. Temperature

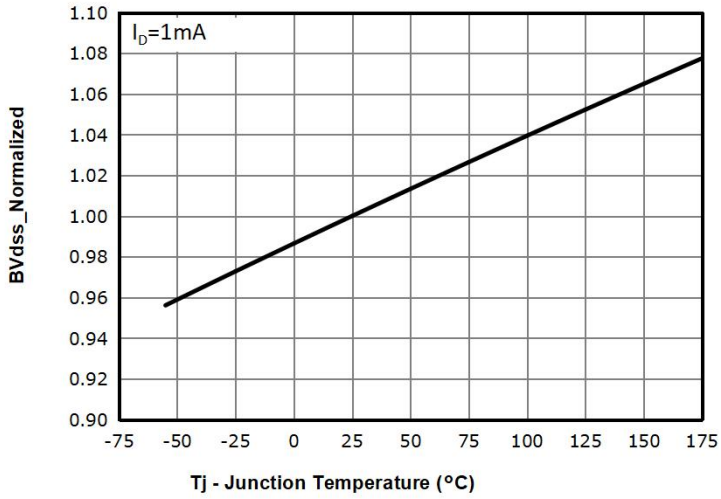


Fig 8: Capacitance Characteristics

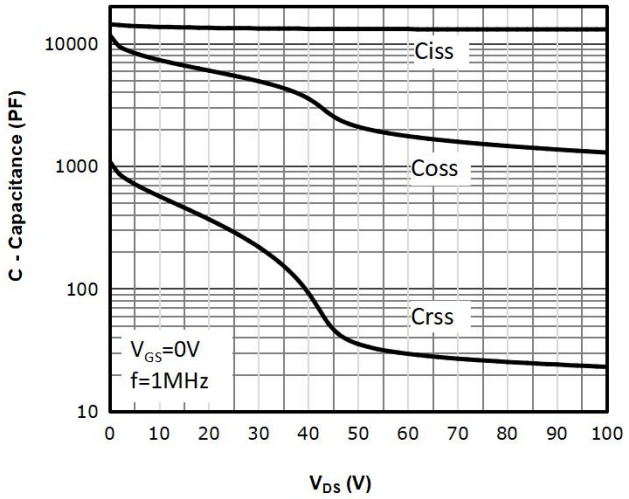


Fig 9: Gate Charge Characteristics

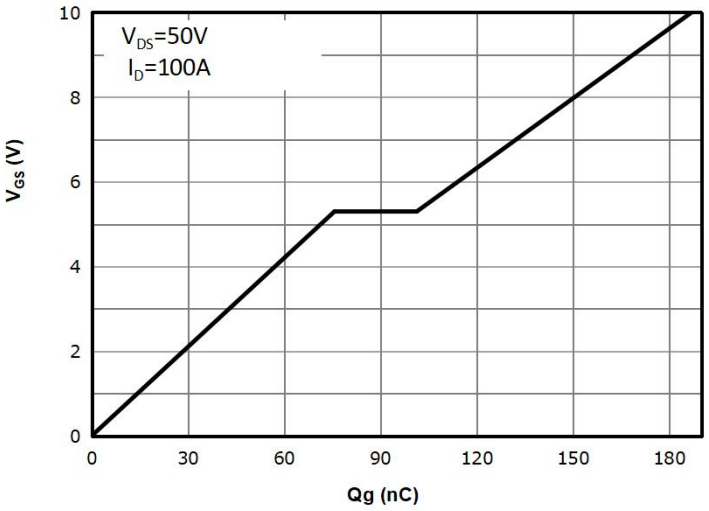


Fig 10: Body-diode Forward Characteristics

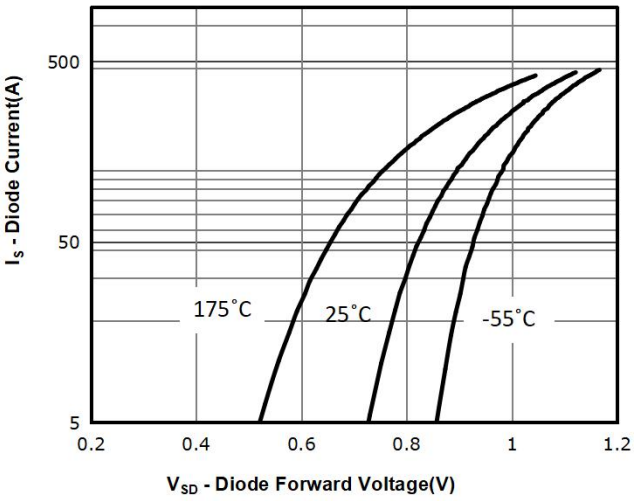


Fig 11: Power Dissipation

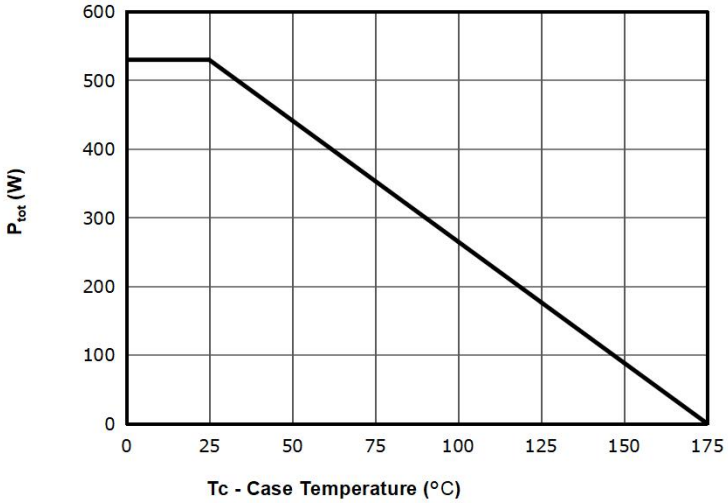


Fig 12: Drain Current Derating

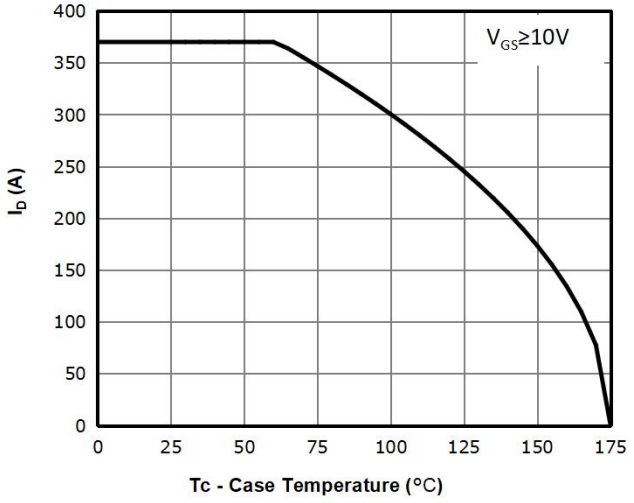


Fig 13: Safe Operating Area

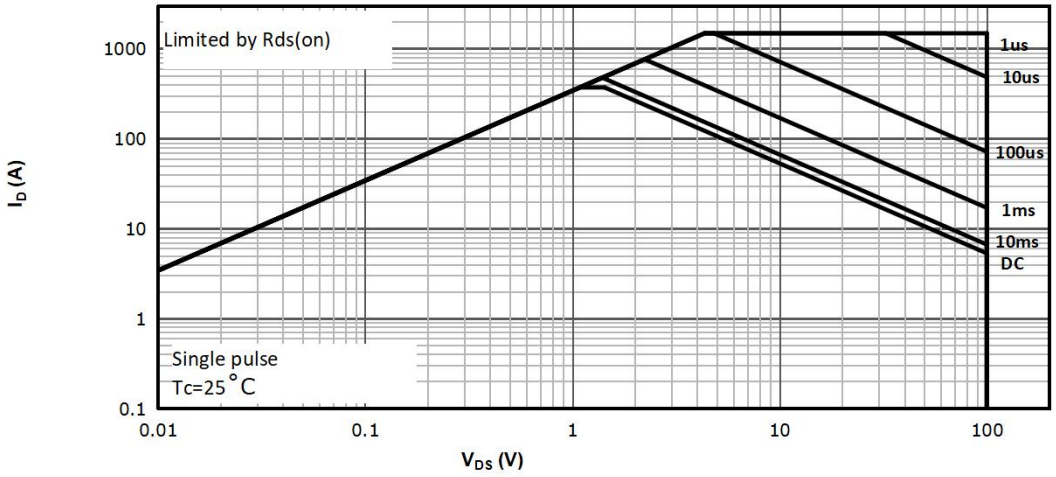
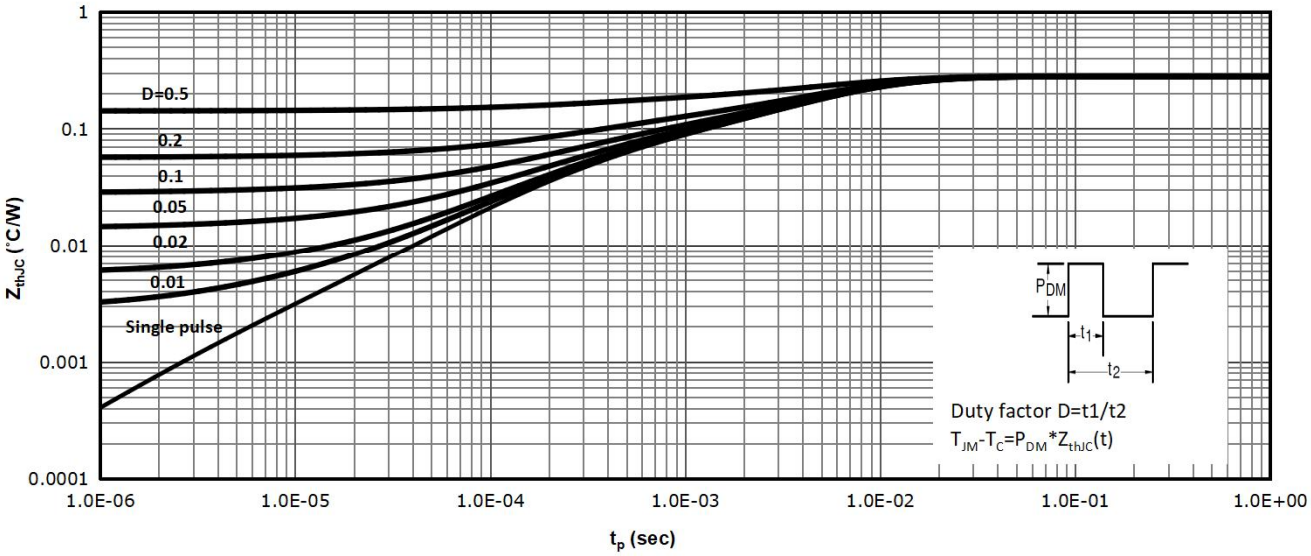
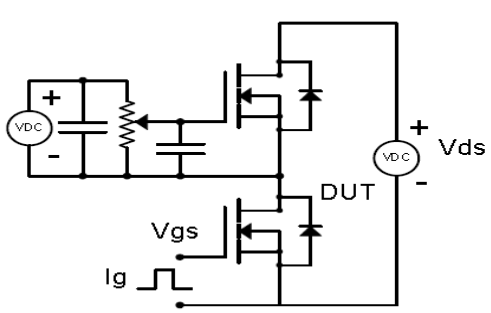


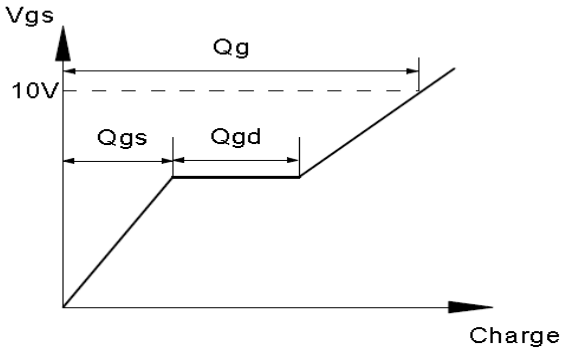
Fig 14: Max. Transient Thermal Impedance



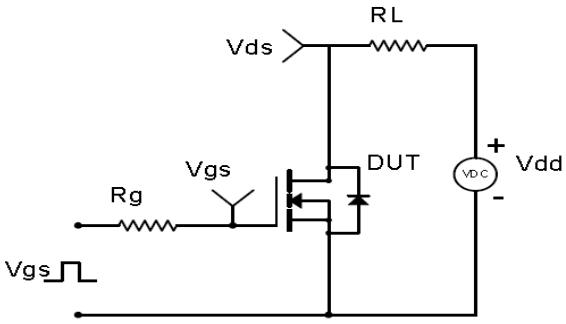
Test Circuit & Waveform

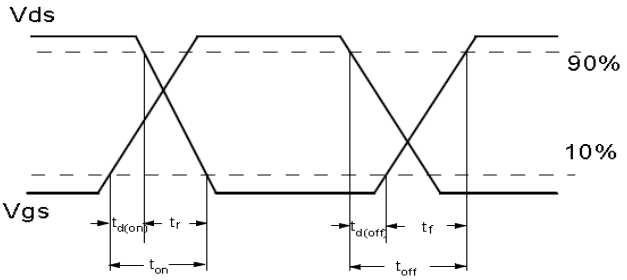
Gate Charge Test Circuit & Waveform



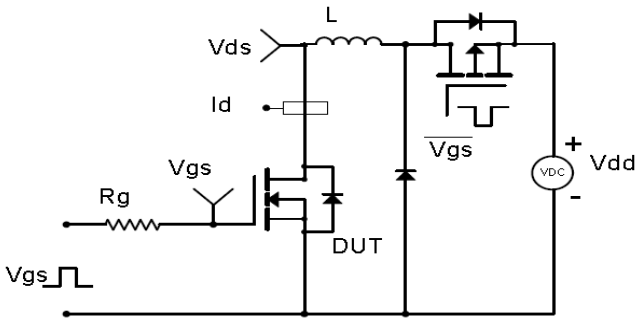


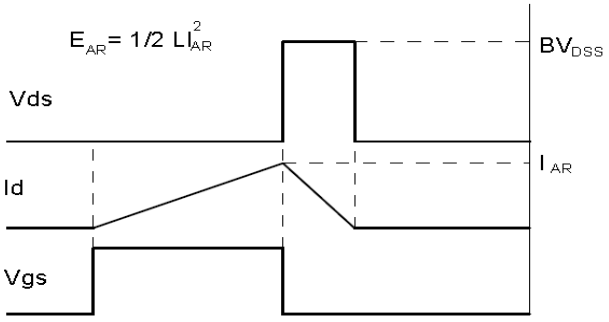
Resistive Switching Test Circuit & Waveforms



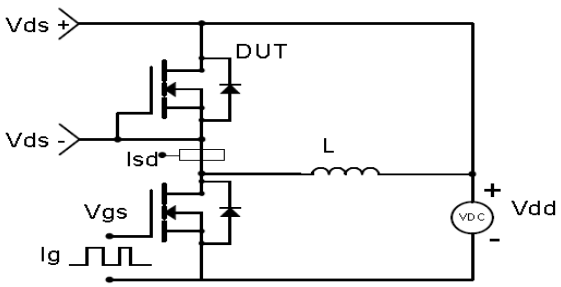


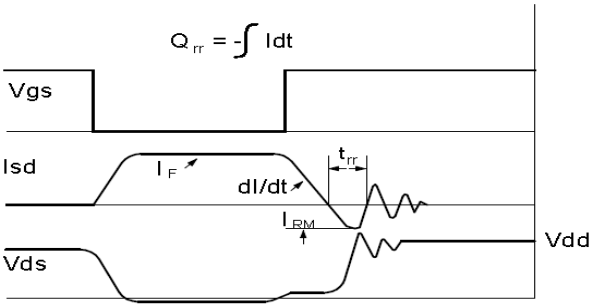
Unclamped Inductive Switching (UIS) Test Circuit & Waveforms



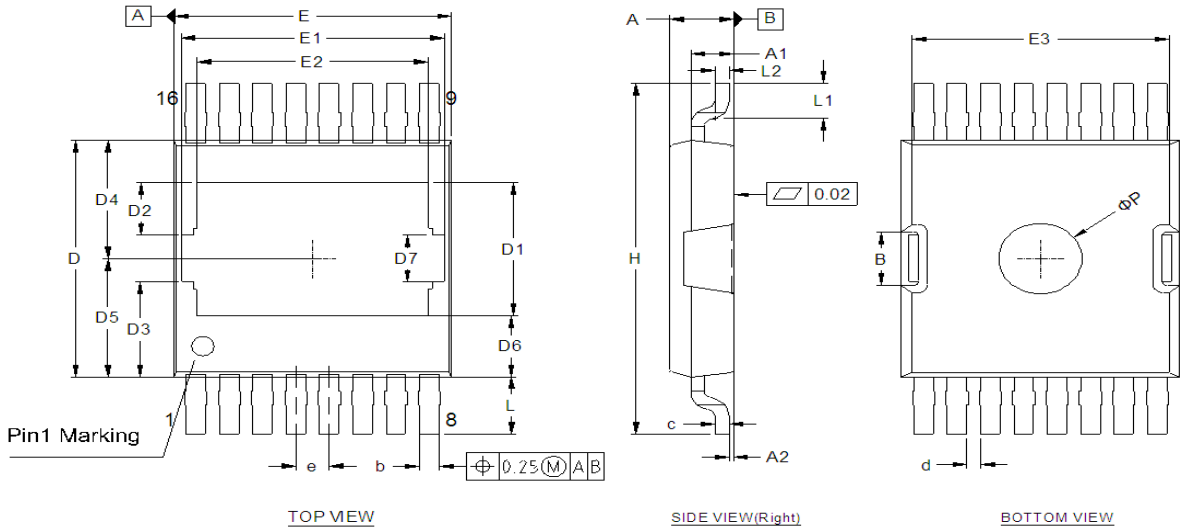


Diode Recovery Test Circuit & Waveforms



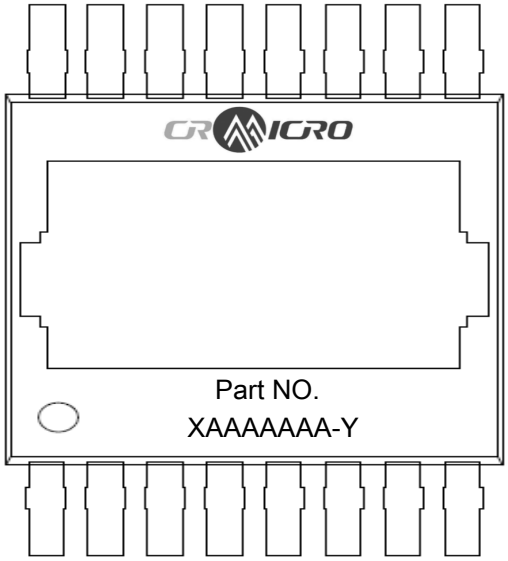


Package Outline: TOLT



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.20	2.40	0.087	0.094
A1	1.34	1.74	0.053	0.069
A2	0.01	0.16	0.000	0.006
b	0.60	0.80	0.024	0.031
c	0.40	0.60	0.016	0.024
d	0.40	0.60	0.016	0.024
e	1.20 BSC		0.047 BSC	
D	10.00	10.30	0.394	0.406
D1	5.47	5.87	0.215	0.231
D2	2.04	2.44	0.080	0.096
D3	4.05 REF		0.159 REF	
D4	5.05 REF		0.199 REF	
D5	5.05 REF		0.199 REF	
D6	2.62 REF		0.103 REF	
D7	2.00 REF		0.079 REF	
E	9.70	10.20	0.382	0.402
E1	9.46 REF		0.372 REF	
E2	8.10	8.50	0.319	0.335
E3	9.07	9.47	0.357	0.373
H	14.80	15.20	0.583	0.598
L	2.25	2.65	0.089	0.104
L1	1.35	1.65	0.053	0.065
L2	0.50 BSC		0.02 BSC	
P	2.90	3.10	0.114	0.122
B	2.18	2.38	0.086	0.094

Marking



NOTE:
XAAAAAAA-Y

X	—Assembly location code
AAAAAAA	—Assembly lot NO. last 7digits
Y	—Bin code

Revision History

Revision	Date	Major changes
1.0	2024/12/6	Release of preliminary 1.0 version.
1.1	2025/3/6	Update pin number.
1.2	2025/3/7	Update Fig 5. & Package Marking.
1.3	2025/10/22	Update Thermal Resistance R_{thJA} max. Value.

Disclaimer

CRM reserves the right to change any product or information in this Specification at any time without prior notice.

The information given in this document shall in no event be regarded as a guarantee of conditions or characteristics .The data contained in this document is exclusively intended for technically trained staff. It is the responsibility of customer's technical departments to evaluate the suitability of the product for the intended application and the completeness of the product information given in this document with respect to such application.

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