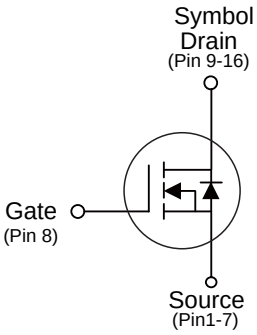
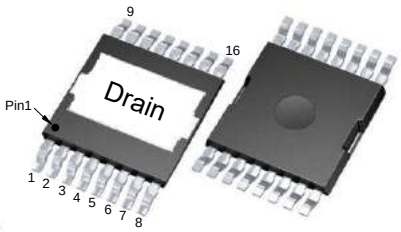
■ PRODUCT CHARACTERISTICS

V_{DSS}	200V
$R_{DS(ON)}$ Typ(@V_{GS}=10V)	7.6mΩ
Qg@typ	48nC
I_D	118A



■ APPLICATIONS

* Battery Management
* Motor Control and Drive
* Switching Applications



■ FEATURE

* Low Gate Charge
* Low Reverse Transfer Capacitance
* 100% Avalanche Tested

■ ORDER INFORMATION

Order Codes		Package	Packing
Halogen-Free	Halogen		
MOT9176T4	N/A	TOLT	1200 pieces/Reel

■ ABSOLUTE MAXIMUM RATINGS(T_A=25°C,unless otherwise specified)

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DSS}	200	V
Gate-Source Voltage	V_{GSS}	±20	V
Drain Current Continuous(@V_{GS}=10V,T_C=25°C)	I_D	118	A
Drain Current Continuous(@V_{GS}=10V,T_C=100°C)	I_D	84	A
Drain Current Pulsed	I_{DM}	472	A
Avalanche Energy *	E_{AS}	650	mJ
Power Dissipation	P_D	285	W
Junction Temperature	T_J	+150	°C
Storage Temperature	T_{STG}	-55~ +150	°C

■ THERMAL CHARACTERISTICS

Parameter	Symbol	Typ	Unit
Junction to Ambient	R_{thJA}	45	°C/W
Junction to Case	R_{thJC}	0.44	°C/W

Note: * EAS condition: T_J=25°C,V_{DD}=50V,V_G=10V,L=0.5mH,R_g=25Ω

■ ELECTRICAL CHARACTERISTICS (T_j=25°C, unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Off characteristics						
Drain to Source Breakdown Voltage	V_{DSS}	V_{GS}=0V,I_D=250μA	200	-	-	V
Drain to Source Leakage Current	I_{DSS}	V_{DS}=200V,V_{GS}=0V	-	-	1	μA
Gate to Source Forward Leakage	$I_{GSS(F)}$	V_{DS}=0V, V_{GS}=+20V	-	-	100	nA
Gate to Source Reverse Leakage	$I_{GSS(R)}$	V_{DS}=0V, V_{GS}=-20V	-	-	-100	nA
On characteristics						
Drain to Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V,I_D=20A	-	7.6	8.4	mΩ
Gate Threshold Voltage	$V_{GS(TH)}$	V_{DS}=V_{GS},I_D=250μA	2	3	4	V
Dynamic characteristics						
Gate capacitance	R_g	V_{GS}=0V,V_{DS}=0V ,f=1.0MHz	-	3.1	-	Ω
Forward Transconductance	g_{fs}	V_{DS}=10V,I_D=5A	-	23	-	S
Input Capacitance	C_{iss}	V_{DS}=50V,V_{GS}=0V f=1.0MHz	-	6082	-	pF
Output Capacitance	C_{oss}		-	667	-	pF
Reverse Transfer Capacitance	C_{rss}		-	26	-	pF
Resistive Switching Characteristics						
Turn-on Delay Time	$t_{d(ON)}$	I_D=20A, V_{DS}=100V R_G=6Ω ,V_{GS}=10V	-	18	-	ns
Rise Time	t_r		-	27	-	ns
Turn-off Delay Time	$t_{d(OFF)}$		-	38	-	ns
Fall Time	t_f		-	19	-	ns
Total Gate Charge	Q_g	I_D=20A, V_{DS}=100V V_{GS}=10V	-	48	-	nC
Gate to Source Charge	Q_{gs}		-	18	-	nC
Gate to Drain("Miller") Charge	Q_{gd}		-	11	-	nC
Source-Drain Diode Characteristics						
Continuous Source Current(Body Diode)	I_S		-	-	118	A
Maximum Pulsed Current(Body Diode)	I_{SM}		-	-	472	A
Diode Forward Voltage	V_{SD}	I_{SD}=1A, V_{GS}=0V	-	0.67	1.2	V
Reverse Recovery Time	t_{rr}	I_{SD} =20A, T_J=25°C dI/dt=100A/μs	-	130	-	ns
Reverse Recovery Charge	Q_{rr}		-	667	-	nC

■ TYPICAL CHARACTERISTICS

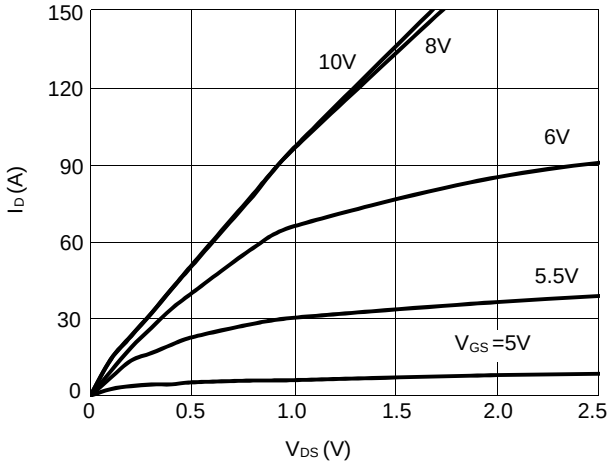


Figure 1: Saturation Characreristics

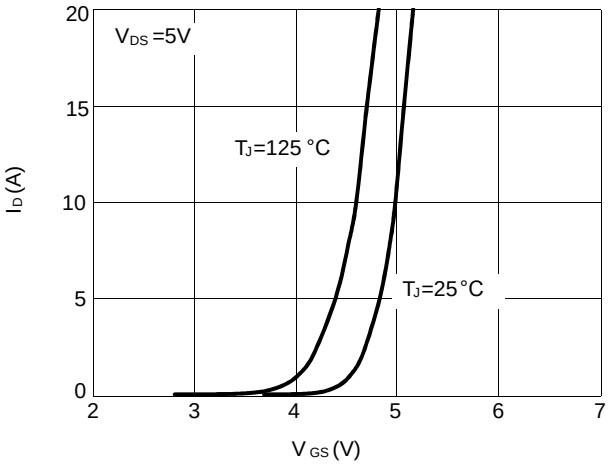


Figure 2: Transfer Characreristics

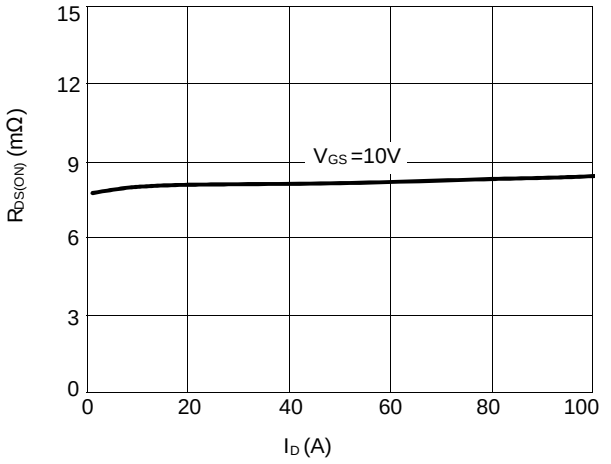


Figure 3: $R_{DS(ON)}$ vs. Drain Current

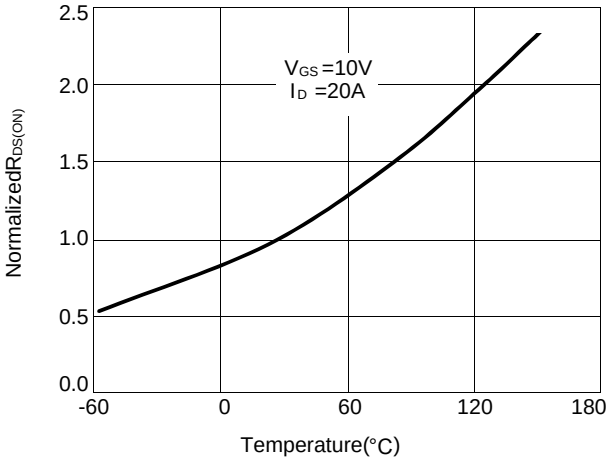


Figure 4: $R_{DS(ON)}$ vs. Junction Temperature

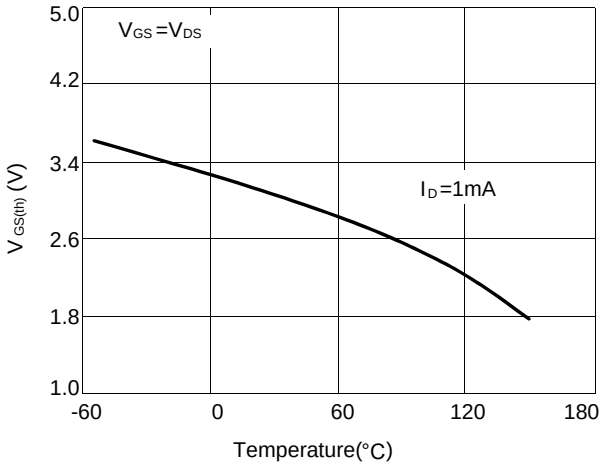


Figure 5: $V_{GS(th)}$ vs. Junction Temperature

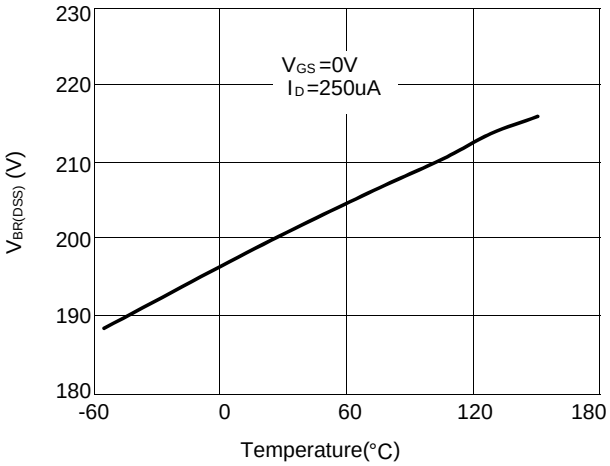


Figure 6: $V_{BR(DSS)}$ vs. Junction Temperature

■ TYPICAL CHARACTERISTICS(Cont.)

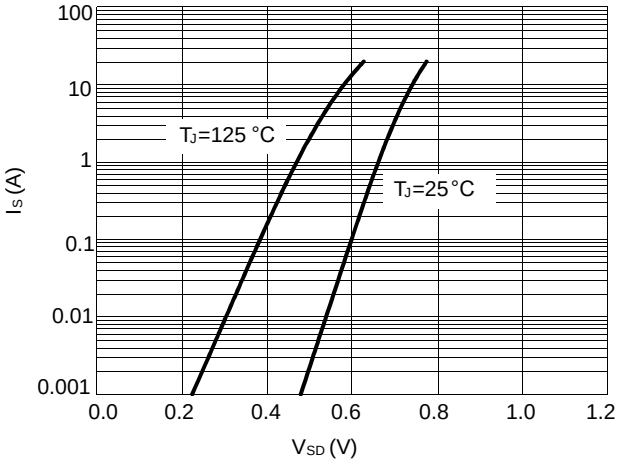


Figure 7: Body Diode Characreristics

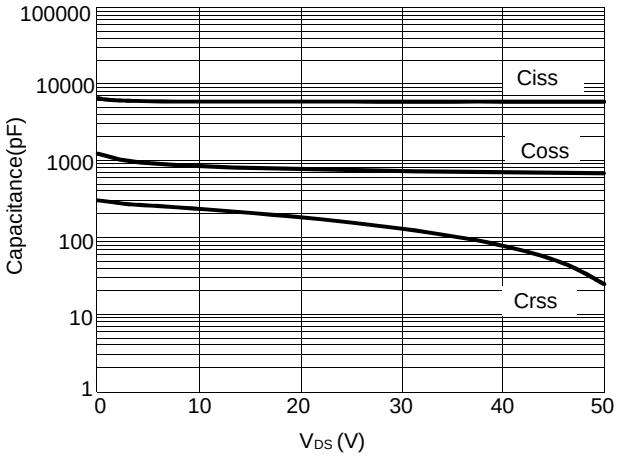


Figure 8: Capacitance Characreristics

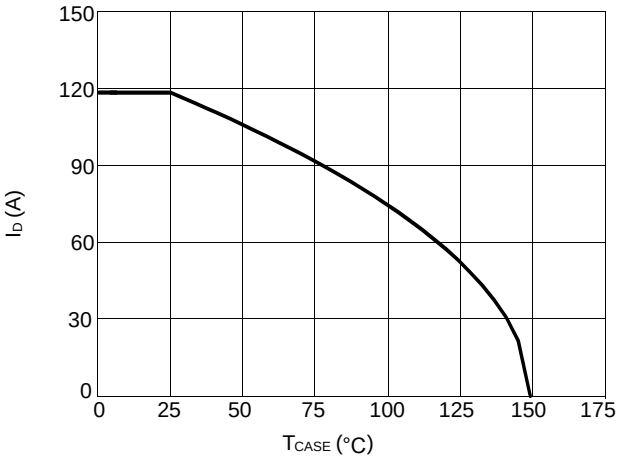


Figure 9: Current De-rating

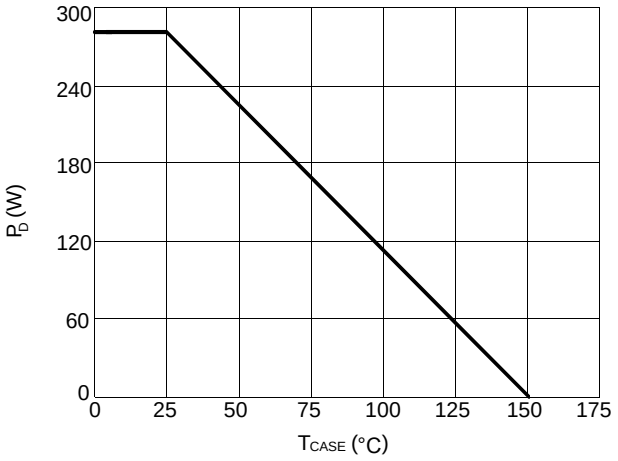


Figure 10: Power De-rating

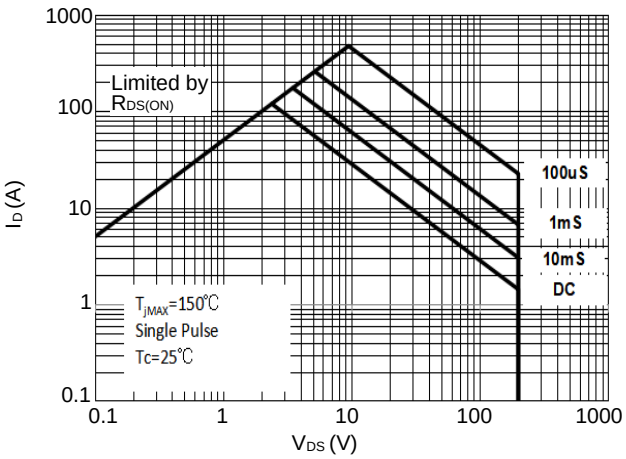
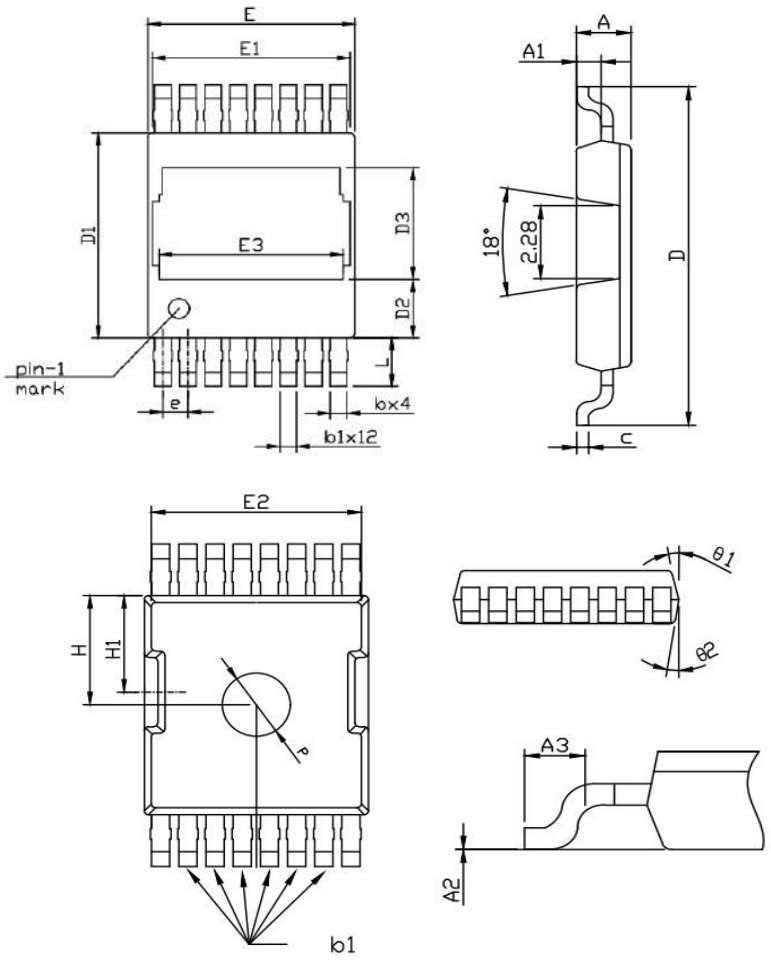


Figure 11: Maximum Safe Operating Area

■ TOLT PACKAGE OUTLINE DIMENSIONS



SYMBOL	mm		
	MIN	NOM	MAX
A	2.25	2.30	2.35
A1	1.00	1.04	1.08
A2	0.01	0.08	0.16
A3		1.50REF	
b	0.73	0.75	0.79
b1	0.68	0.70	0.74
c	0.45	0.50	0.55
D	14.80	15.00	15.20
D1	10.00	10.10	10.30
D2	2.20	2.44	2.64
D3		5.67REF	
E	9.70	9.90	10.10
E1		9.46REF	
E2		9.25REF	
E3		8.30REF	
e	1.18	1.20	1.12
H	5.00	5.20	5.40
H1	4.40	4.60	4.80
L	2.40	2.45	2.50
P	2.80	3.00	3.20
θ1	7°	-	9°
θ2	7°	-	9°

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