

PRODUCT CHARACTERISTICS

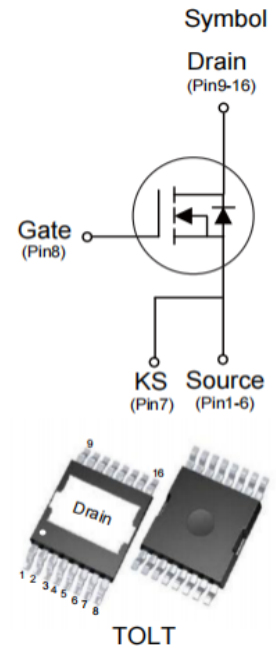
V_{DSS}	100V
$R_{DS(ON)}$ Typ(@ $V_{GS}=10V$)	1.1m Ω
Q_g @typ	161nC
I_D	399A

APPLICATIONS

- * Battery management
- * Motor control and drive
- * Synchronous rectification
- * Switching applications

FEATURE

- * Uses MOT advanced double trench technology
- * Low On-Resistance ($R_{DS(on)} \leq 1.3m\Omega$)
- * Low Gate Charge
- * Low Reverse transfer capacitances
- * 100% avalanche tested
- * Pb-free plating; RoHS compliant



ORDER INFORMATION

Order Codes		Package	Packing
Halogen-Free	Halogen		
MOT1113T4	N/A	TOLT	2000 pieces/Reel

ABSOLUTE MAXIMUM RATINGS($T_A=25^\circ C$, unless otherwise specified)

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DSS}	100	V
Gate-Source Voltage	V_{GSS}	± 20	V
Drain Current Continuous(@ $V_{GS}=10V, T_A=25^\circ C$)	I_D	399	A
Drain Current Continuous(@ $V_{GS}=10V, T_A=100^\circ C$)	I_D	282	A
Drain Current Pulsed	I_{DM}	1596	A
Avalanche Energy *	E_{AS}	2900	mJ
Power Dissipation	P_D	455	W
Junction Temperature	T_J	+175	$^\circ C$
Storage Temperature	T_{STG}	-55~ +175	$^\circ C$

THERMAL CHARACTERISTICS

Parameter	Symbol	Typ	Unit
Junction to Ambient	R_{thJA}	32.8	$^\circ C/W$
Junction to Case	R_{thJC}	0.33	$^\circ C/W$

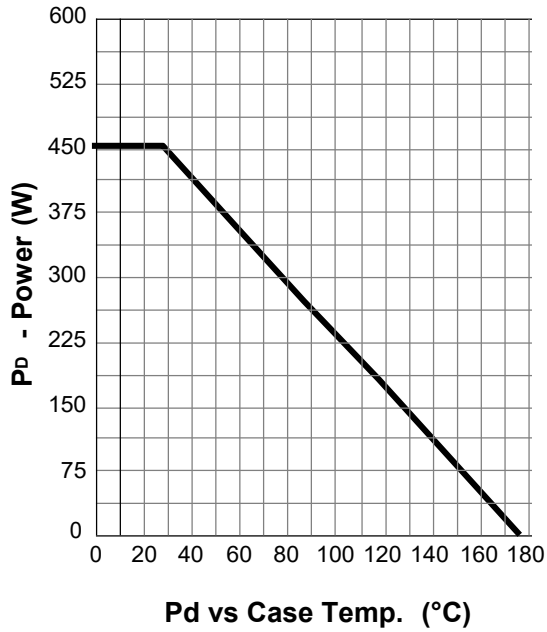
Note: * EAS condition: $T_J=25^\circ C, V_{DD}=30V, V_G=10V, L=0.5mH, R_g=25\Omega$

■ ELECTRICAL CHARACTERISTICS ($T_C=25^{\circ}\text{C}$, unless otherwise noted)

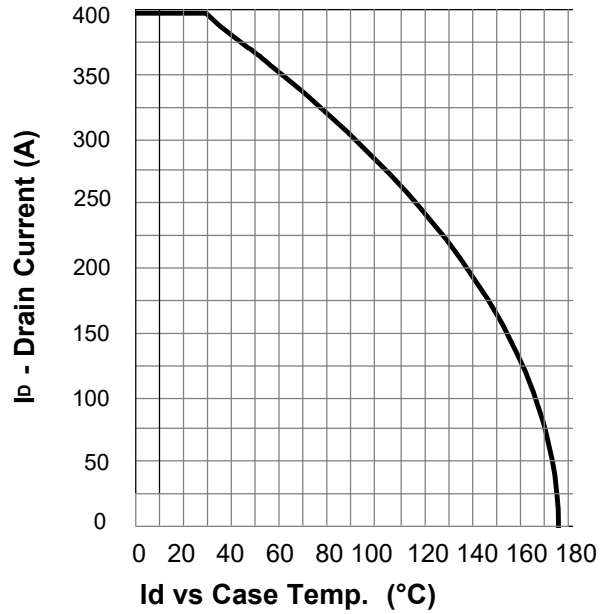
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Off characteristics						
Drain to Source Breakdown Voltage	V _{DSS}	V _{GS} =0V,I _D =250μA	100	-	-	V
Drain to Source Leakage Current	I _{DSS}	V _{DS} =100V,V _{GS} =0V	-	-	1	μA
Gate to Source Forward Leakage	I _{GSS(F)}	V _{DS} =0V, V _{GS} =+20V	-	-	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 =50A	-	1.1	1.3	mΩ
		V _{GS} =6V,I _D =25A	-	1.5	2.0	mΩ
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} ,I _D =250μA	2	-	4	V
Dynamic characteristics						
Input Capacitance	C _{iss}	V _{DS} =50V,V _{GS} =0V f=1.0MHz	-	13574	-	pF
Output Capacitance	C _{oss}		-	2036	-	pF
Reverse Transfer Capacitance	C _{rss}		-	196	-	pF
Resistive Switching Characteristics						
Turn-on Delay Time	t _{d(ON)}	I _D =50A, V _{DS} =50V R _G =4.5Ω ,V _{GS} =10V	-	44	-	ns
Rise Time	t _r		-	132	-	ns
Turn-off Delay Time	t _{d(OFF)}		-	154	-	ns
Fall Time	t _f		-	137	-	ns
Total Gate Charge	Q _g	I _D =50A, V _{DS} =50V V _{GS} =10V	-	161	-	nC
Gate to Source Charge	Q _{gs}		-	69	-	nC
Gate to Drain("Miller") Charge	Q _{gd}		-	56	-	nC
Source-Drain Diode Characteristics						
Continuous Source Current(Body Diode)	I _s		-	-	399	A
Maximum Pulsed Current(Body Diode)	I _{SM}		-	-	1596	A
Diode Forward Voltage	V _{SD}	I _{SD} =1A, V _{GS} =0V	-	0.66	1.3	V
Reverse Recovery Time	t _{rr}	I _{SD} =50A, T _j =25 °C dI/dt=100A/μs	-	137	-	ns
Reverse Recovery Charge	Q _{rr}		-	347	-	nC

■ TYPICAL CHARACTERISTICS

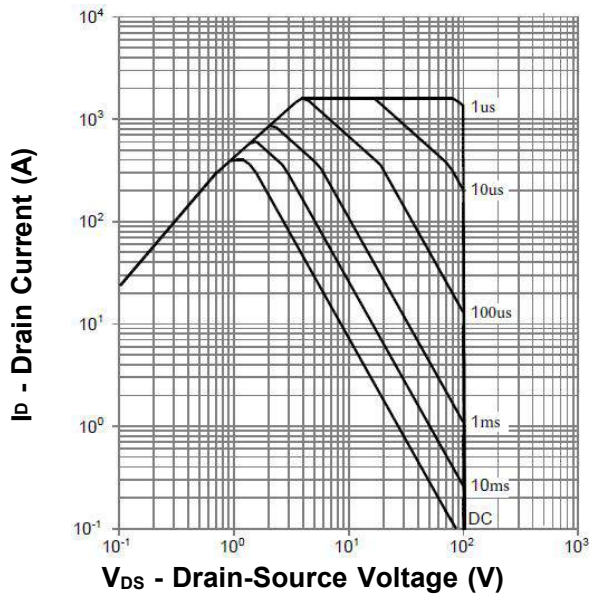
Power Capability



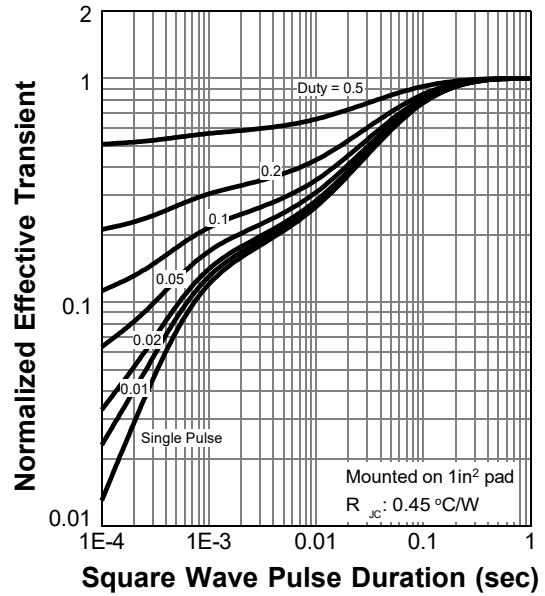
Current Capability



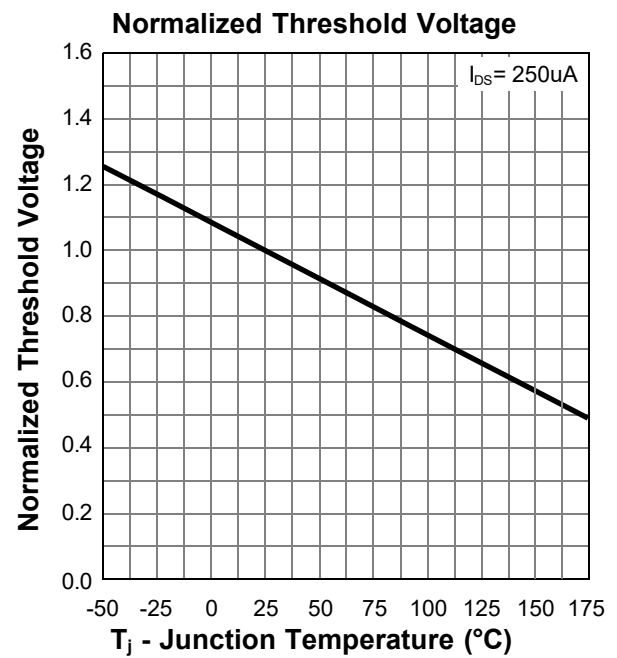
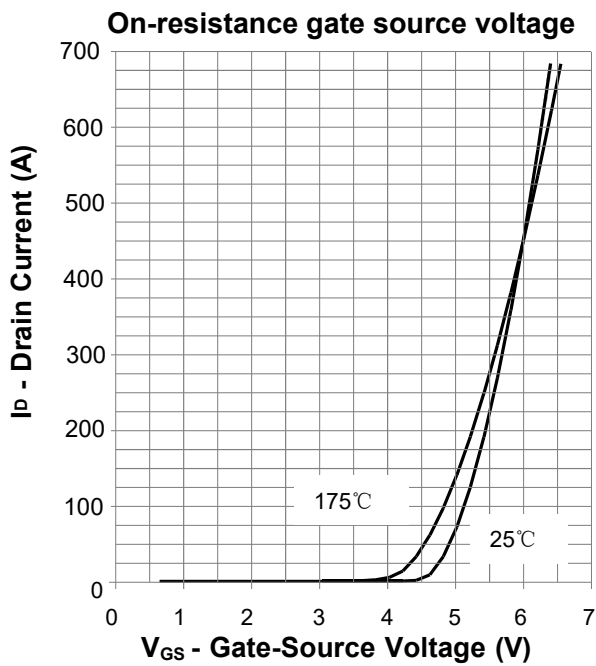
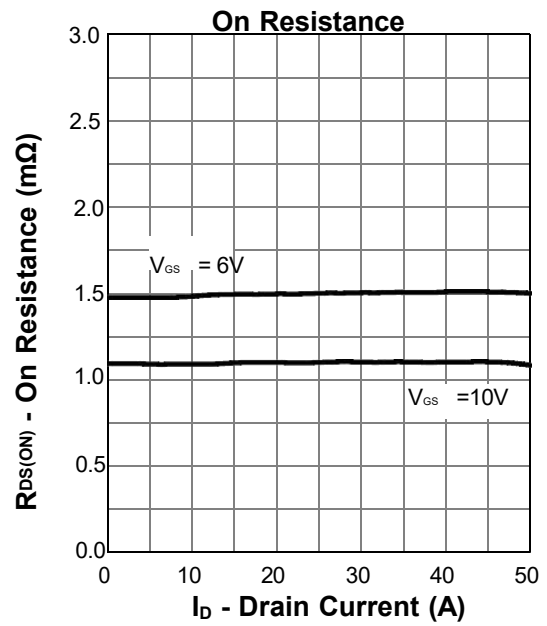
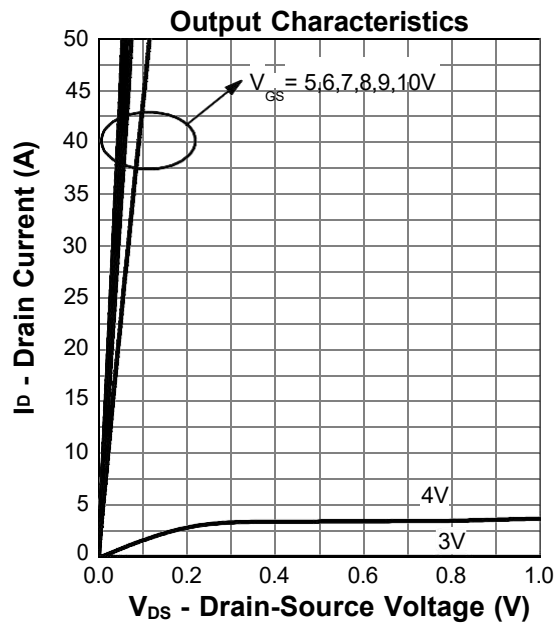
Safe Operating Area



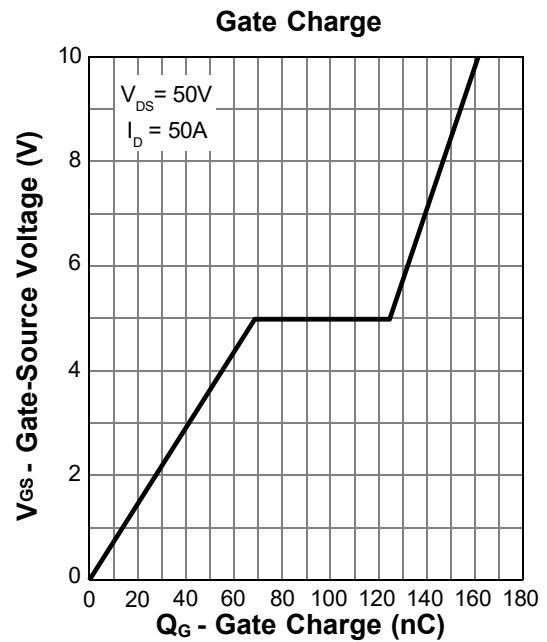
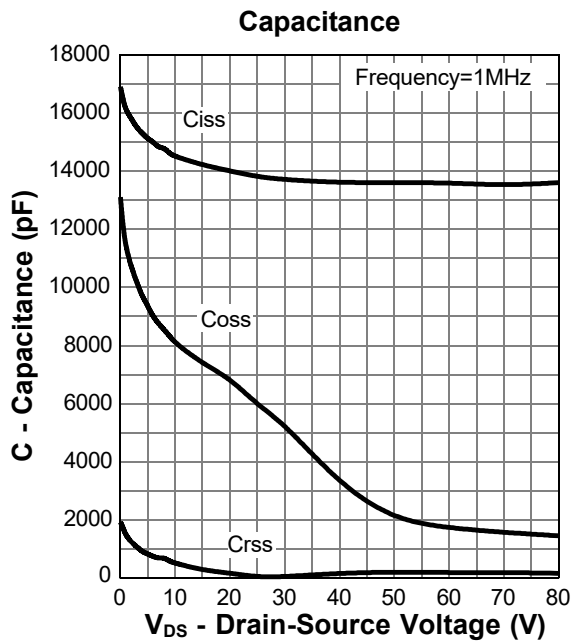
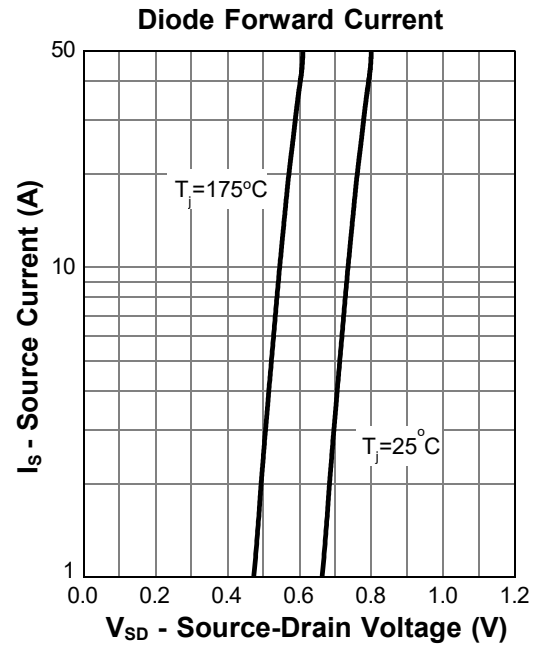
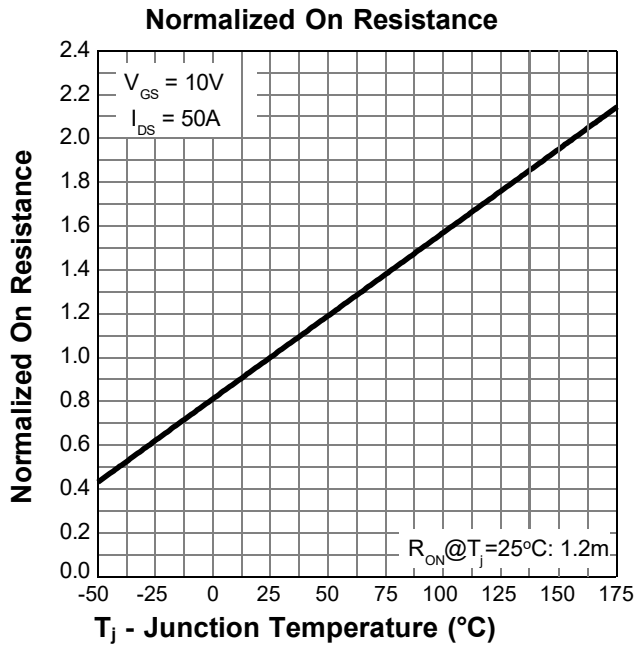
Transient Thermal Impedance



■ TYPICAL CHARACTERISTICS(Cont.)



■ TYPICAL CHARACTERISTICS(Cont.)



■ TOLT PACKAGE OUTLINE DIMENSIONS

