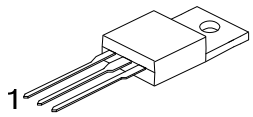
100A, 30V N-CHANNEL POWER MOSFET



TO-220

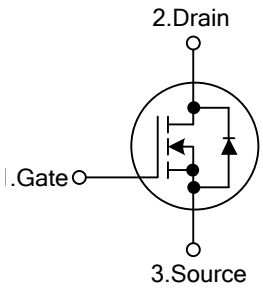
■ DESCRIPTION

The **ULB4132** uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with low gate voltages. This device is suitable for use as a load switch or in PWM applications.

■ FEATURES

* $R_{DS(ON)}$=3.05mΩ @ V_{GS}=10V, I_D=50A
  $R_{DS(ON)}$= 4.2mΩ @ V_{GS}=4.5V, I_D=40A

■ SYMBOL



■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
ULB4132L-TA3-T	ULB4132G-TA3-T	TO-220	G	D	S	Tube

Note: Pin Assignment: G: Gate D: Drain S: Source

ULB4132L-TA3-R (1)Packing Type (2)Package Type (3)Lead Free	(1) R: Tape Reel (2) TA3: TO-220 (3) G: Halogen Free, L: Lead Free

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

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V_{DSS}	30	V
Gate-Source Voltage		V_{GSS}	±20	V
Drain Current	Continuous	I_D	78	A
	Pulsed	I_{DM}	620	A
Single Pulsed Avalanche Energy		E_{AS}	310	mJ
Single Pulsed Avalanche Current		I_{AS}	35	A
Power Dissipation		P_D	83	W
Junction Temperature		T_J	+150	°C
Strong Temperature		T_{STG}	-55 ~ +150	°C

Note: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ THERMAL DATA

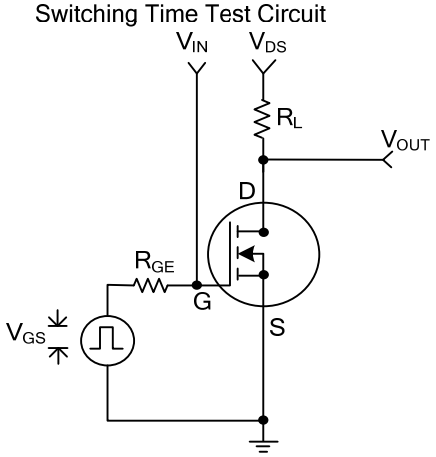
PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	62.5	°C/W
Junction to Case	θ_{JC}	1.5	°C/W

■ ELECTRICAL CHARACTERISTICS (T_J =25°C, unless otherwise noted)

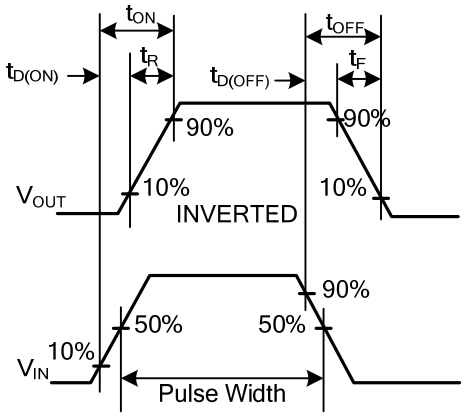
PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage		BV_{DSS}	V_{GS} =0 V, I_D =250 μA	30			V
Drain-Source Leakage Current		I_{DSS}	V_{DS}=30 V,V_{GS} =0 V			1	μA
Gate-Source Leakage Current		I_{GSS}	V_{DS} =0 V, V_{GS} = ±20 V			±100	nA
Gate-Source Leakage Current	Forward	I_{GSS}	V_{GS}=+20V, V_{DS}=0V			+100	nA
	Reverse		V_{GS}=-20V, V_{DS}=0V			-100	nA
ON CHARACTERISTICS							
Gate Threshold Voltage		$V_{GS(TH)}$	V_{DS} =V_{GS}, I_D =100 μA	1.35	1.8	2.35	V
Static Drain-Source On-Resistance		$R_{DS(ON)}$	V_{GS} =10 V, I_D =50 A		3.05	5.3	mΩ
			V_{GS} =4.5 V, I_D =40 A		4.2	8	
DYNAMIC PARAMETERS							
Input Capacitance		C_{ISS}	V_{DS} =15V, V_{GS} =0V, f=1.0MHz		5110		pF
Output Capacitance		C_{OSS}			960		
Reverse Transfer Capacitance		C_{RSS}			440		
SWITCHING PARAMETERS							
Total Gate Charge		Q_G	V_{DS}=15V, I_D=32A, I_G=3.33mA, V_{GS}=5V		36	54	nC
Gate Source Charge		Q_{GS}			9.1		
Gate Drain Charge		Q_{GD}			13		
Turn-ON Delay Time		$t_{D(ON)}$	V_{DD}=15V, I_D =32A, R_G =1.8Ω V_{GS} =10 V		23		ns
Turn-ON Rise Time		t_R			95		
Turn-OFF Delay Time		$t_{D(OFF)}$			25		
Turn-OFF Fall-Time		t_F			36		
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS							
Maximum Body-Diode Continuous Current		I_S		150			A
Maximum Body-Diode Pulsed Current		I_{SM}		620			A
Drain-Source Diode Forward Voltage		V_{SD}	I_S=32 A,V_{GS}=0 V			1	V

■ TEST CIRCUIT AND WAVEFORM

Switching Time Test Circuit

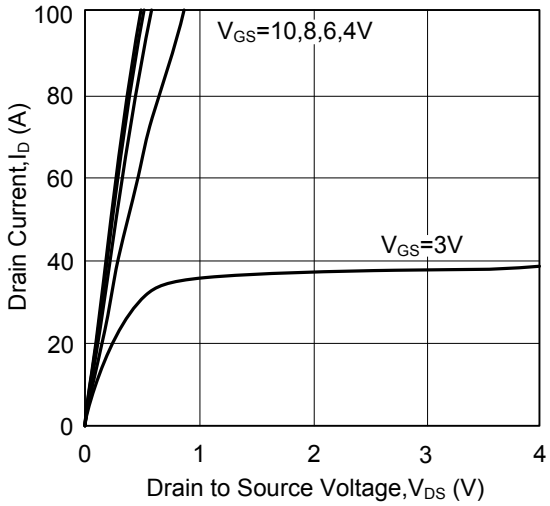


Switching Waveforms

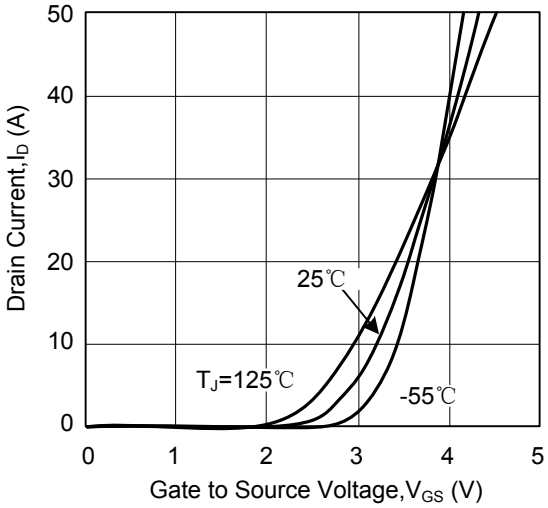


■ TYPICAL CHARACTERISTICS

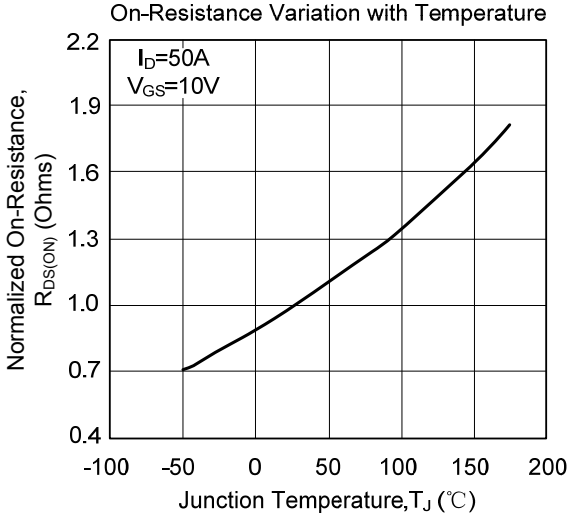
Output Characteristics



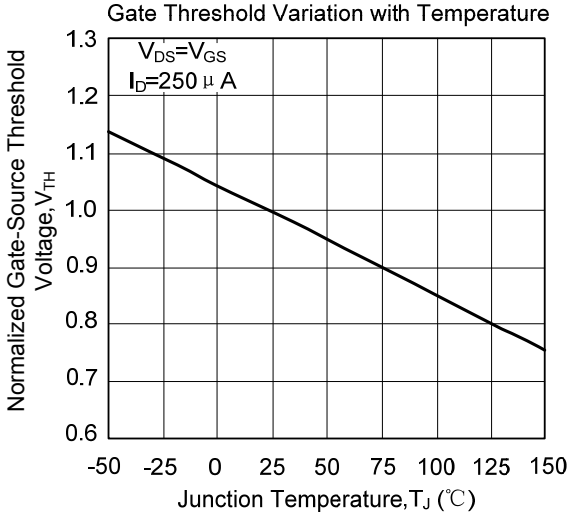
Transfer Characteristics



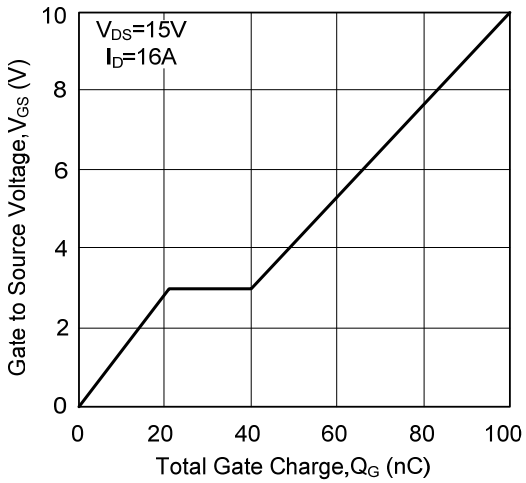
On-Resistance Variation with Temperature



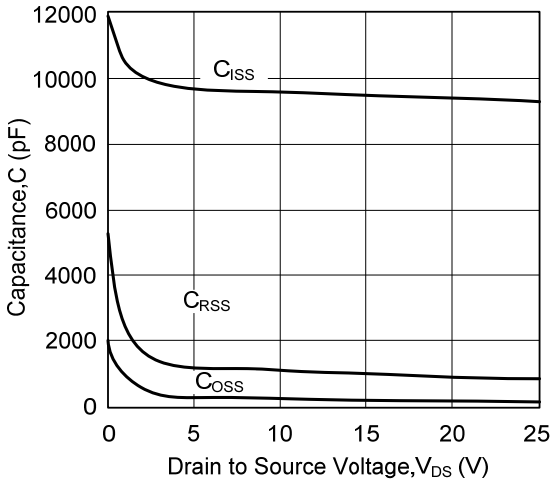
Gate Threshold Variation with Temperature



Gate-Charge Characteristics

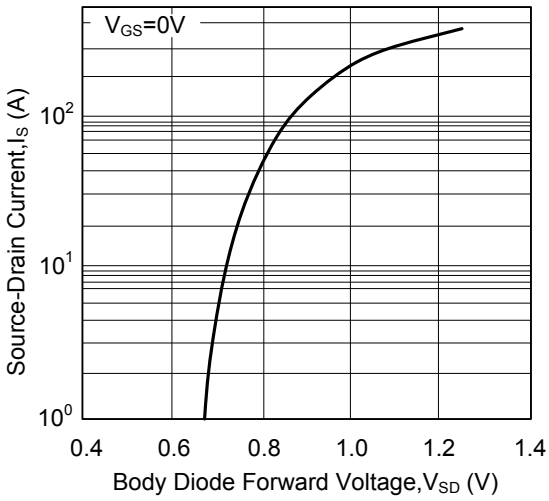


Capacitance Characteristics

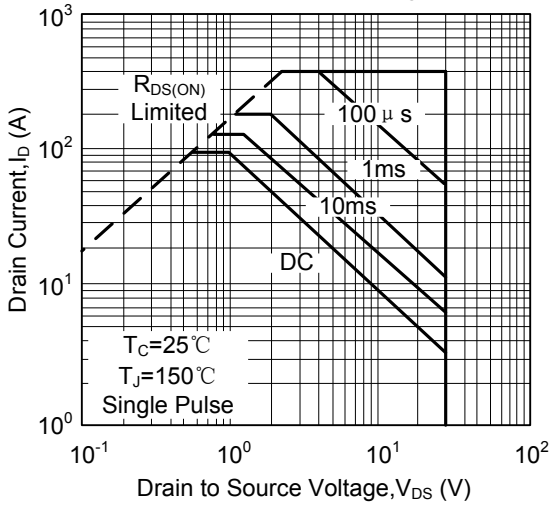


■ TYPICAL CHARACTERISTICS(Cont.)

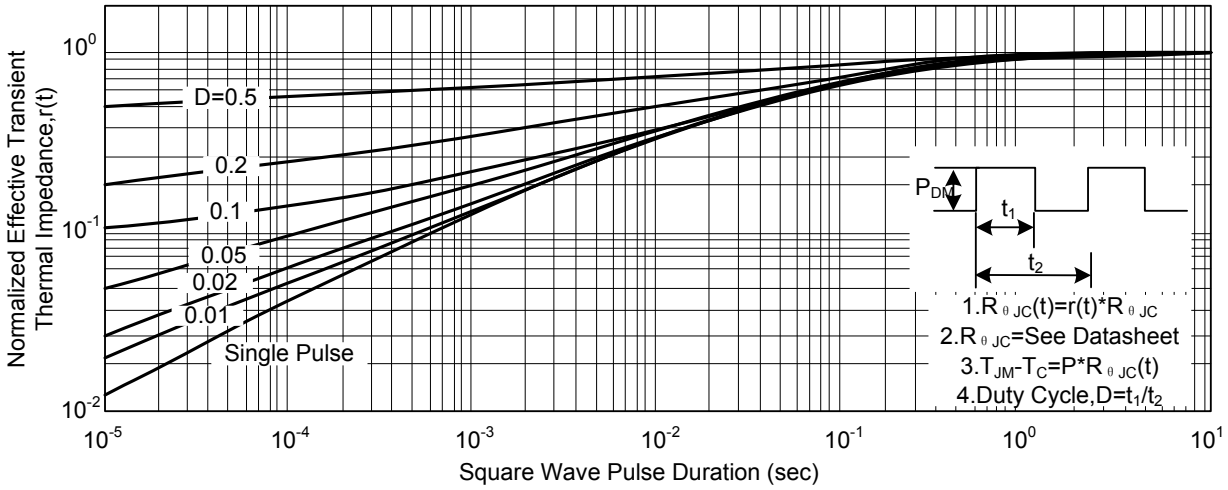
Body-Diode Characteristics



Maximum Safe Operating Area



Normalized Thermal Transient Impedanc Curve



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