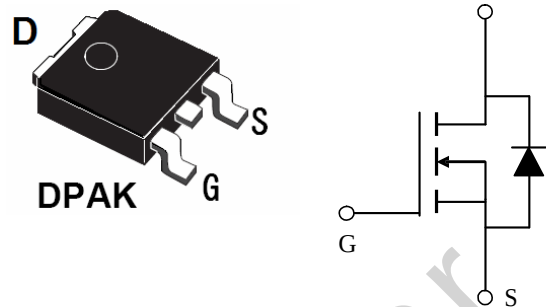


DESCRIPTION

The 4132 is N channel enhancement mode power effect transistor which is produced using high cell density advanced trench technology.

The high density process is especially able to minize on-state resistance. These devices are. especially suited for low voltage application power management DC-DC converters.

PIN CONFIGURATION



FEATURE

- ◆ 30V/100A, $R_{DS(ON)}=2.7m\Omega(typ.)@V_{GS}=10V$
- ◆ 30V/80A, $R_{DS(ON)}=3.5m\Omega(typ.)@V_{GS}=4.5V$
- ◆ Super high design for extremely low $R_{DS(ON)}$
- ◆ Exceptional on-resistance and Maximum DC current capability
- ◆ Full RoHS compliance
- ◆ TO-252 package design
- ◆ 100% UIS Tested
- ◆ 100% Rg tested

APPLICATIONS

- ◆ Power Management
- ◆ DC/DC Converter
- ◆ Load Switch

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ C$ Unless otherwise noted)

Symbol	Parameter	Max.	Units
V_{DS}	Drain-to-Source Voltage	30	V
V_{GS}	Gate-to-Source Voltage	± 20	
$I_D @ T_A = 25^\circ C$	Continuous Drain Current, $V_{GS} @ 10V$	30	A
$I_D @ T_A = 70^\circ C$	Continuous Drain Current, $V_{GS} @ 10V$	25	
$I_D @ T_C(Bottom) = 25^\circ C$	Continuous Drain Current, $V_{GS} @ 10V$	100	
$I_D @ T_C(Bottom) = 100^\circ C$	Continuous Drain Current, $V_{GS} @ 10V$	55	
$I_D @ T_C = 25^\circ C$	Continuous Drain Current, $V_{GS} @ 10V$ (Package Limited)	52	
I_{DM}	Pulsed Drain Current	180	
$P_D @ T_A = 25^\circ C$	Power Dissipation	3.6	W
$P_D @ T_C(Bottom) = 25^\circ C$	Power Dissipation	52	
	Linear Derating Factor	0.03	W/ $^\circ C$
T_J	Operating Junction and	-55 to + 150	$^\circ C$
T_{STG}	Storage Temperature Range		

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

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ Unless otherwise noted)

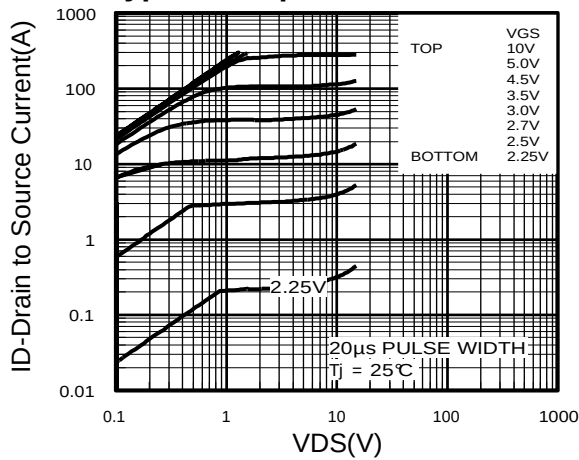
Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Parameters						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D = 250uA	30			V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D = 250uA	1.0		2.0	V
I _{GSS}	Gate Leakage Current	V _{DS} =0V, V _{GS} =±25V			±100	nA
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-24V, V _{GS} =0			1	uA
		V _{DS} =-24V, V _{GS} =0 T _J =85℃			30	
R _{DS(ON)}	Drain-Source On-Resistance	V _{GS} = 10V, I _D = 20 A		2.7	3.5	mΩ
		V _{GS} = 4.5V, I _D = 15 A		3.5	4.5	
Source-Drain Diode						
V _{SD}	Diode Forward Voltage	I _S = 40 A, V _{GS} =0V		0.7	1.3	V
Dynamic Parameters						
Q _g	Total Gate Charge	V _{DS} = 15V V _{GS} = 10V I _D = 49 A		53		nC
Q _{gs}	Gate-Source Charge			23		
Q _{gd}	Gate-Drain Charge			13		
C _{iss}	Input Capacitance	V _{DS} = 10V V _{GS} =0V f=1MHz		4886		pF
C _{oss}	Output Capacitance			940		
C _{rss}	Reverse Transfer Capacitance			440		
T _{d(on)}	Turn-On Time	V _{DS} = 15V I _D = 40A V _{GEN} =4.5V R _G =1.8Ω		19		nS
T _r				35		
T _{d(off)}	Turn-Off Time			22		
T _f				17		

Note: 1. Pulse test: pulse width $\leq 300\mu\text{S}$, duty cycle $\leq 2\%$

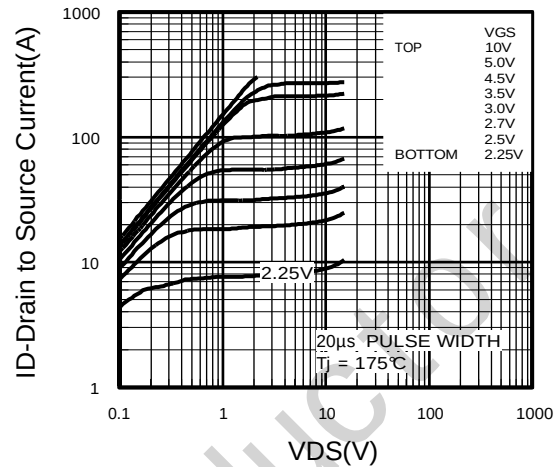
2. Static parameters are based on package level with recommended wire bonding

■ **TYPICAL CHARACTERISTICS** (25°C Unless Note)

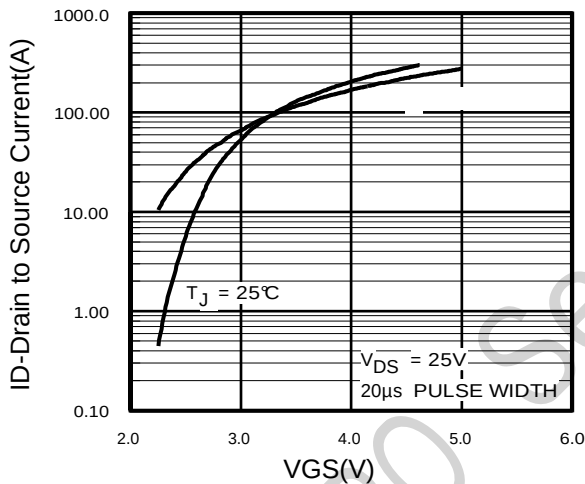
Typical Output Characteristics



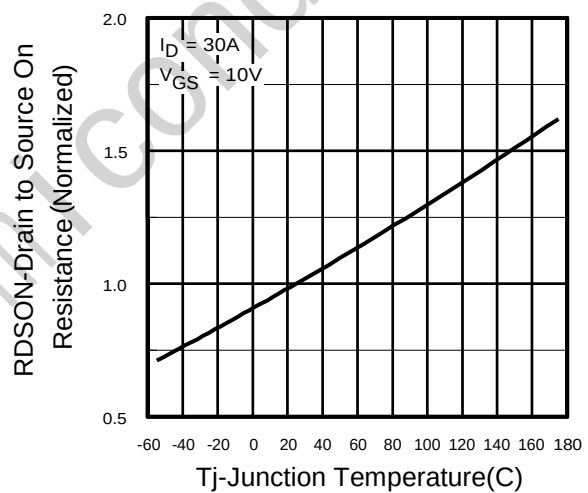
Typical Output Characteristics



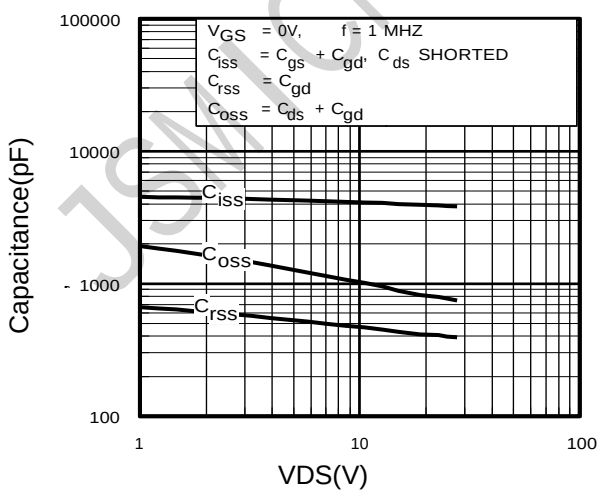
Typical Transfer Characteristics



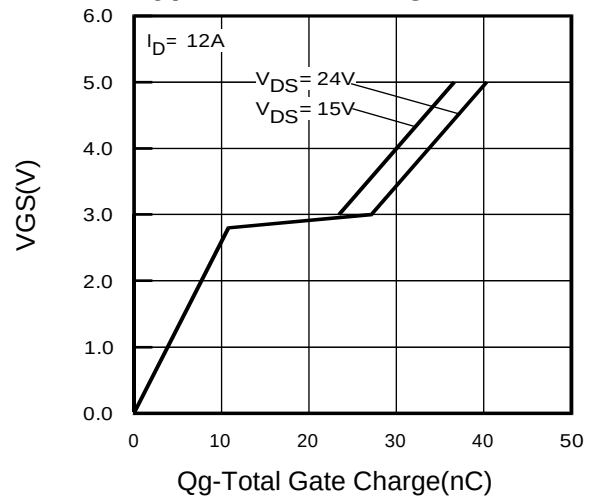
Normalized RDSON vs Temperature



Typical Capacitance vs DS



Typical Gate Charge vs GS



TYPICAL CHARACTERISTICS (continuous)

