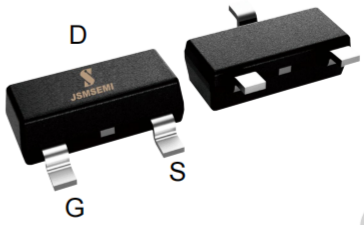
■ FEATURE

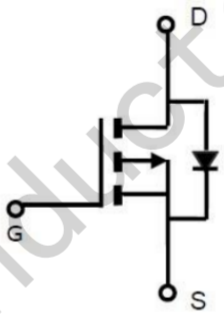
- ***-30V/-4.3A, $R_{DS(ON)}$=44mΩ (typ.)@V_{GS}=-10V***
- ***-30V/-3.5A, $R_{DS(ON)}$=50mΩ (typ.)@V_{GS}=-4.5V***
- ***-30V/-2.5A, $R_{DS(ON)}$=65mΩ (typ.)@V_{GS}=-2.5V***
- Super high design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and Maximum DC current capability
- Full RoHS compliance
- SOT23-3 package design



■ DESCRIPTION

The SI2315BDS-T1-GE3is the P-Channel logic enhancement mode power field effect transistor is produced using high cell density advanced trench technology..

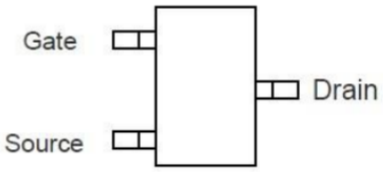
This high density process is especially tailored to minimize on-state resistance. These devices are particularly suited for low voltage application, and low in-line power loss are needed in a very small outline surface mount package.



P-Channel

■ APPLICATIONS

- Power Management
- Portable Equipment
- DC/DC Converter
- Load Switch
- DSC
- LCD Display inverter



TOP VIEW
SOT-23

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■ ABSOLUTE MAXIMUM RATINGS (T_A = 25℃ Unless otherwise noted)

Symbol	Parameter		Typical	Unit
V_{DSS}	Drain-Source Voltage		-30	V
V_{GSS}	Gate-Source Voltage		±12	V
I_D	Continuous Drain Current (T_C=25℃)	V_{GS}=-10V	-4.3	A
	Continuous Drain Current (T_J=70℃)		-4.0	
I_{DM}	Pulsed Drain Current		-20	A
I_S	Continuous Source Current (Diode Conduction)		-1.5	A
P_D	Power Dissipation	T_A=25℃	1.5	W
		T_A=70℃	0.9	
T_J	Operation Junction Temperature		150	℃
T_{STG}	Storage Temperature Range		-55~+150	℃
$R_{\theta JA}$	Thermal Resistance Junction to Ambient		120	℃/W

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℃ 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	-0.6		-1.2	V
I_{GSS}	Gate Leakage Current	V_{DS}=0V, V_{GS}=±12V			±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=55℃			-5	
$R_{DS(ON)}$	Drain-Source On-Resistance	V_{GS}=-10V, I_D=-4.3A		44	52	mΩ
		V_{GS}=-4.5V, I_D=-3.5A		50	58	
		V_{GS}=-2.5V, I_D=-2.5A		65	78	
Source-Drain Diode						
V_{SD}	Diode Forward Voltage	I_S=-1.0A, V_{GS}=0V		-0.7	-1.0	V
Dynamic Parameters						
Q_g	Total Gate Charge	V_{DS}=-20V		6.2		nC
Q_{gs}	Gate-Source Charge	V_{GS}=-4.5V		2.8		
Q_{gd}	Gate-Drain Charge	I_D=-4.0A		3.0		
C_{iss}	Input Capacitance	V_{DS}=-12V		672		pF
C_{oss}	Output Capacitance	V_{GS}=0V		280		
C_{rss}	Reverse Transfer Capacitance	f=1MHz		102		
$T_{d(on)}$	Turn-On Time	V_{DS}=-12V		9		nS
T_r		I_D=-4A		15		
$T_{d(off)}$	Turn-Off Time	V_{GEN}=-10V		23		
T_f		R_G=3.3Ω		21		

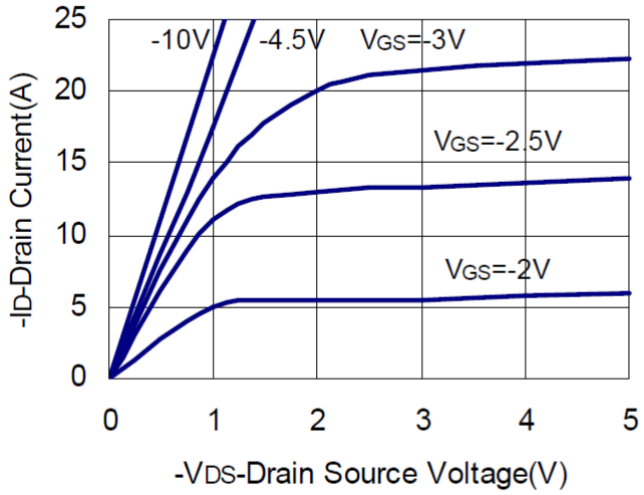
Note: 1. Pulse test: pulse width<=300uS, duty cycle<=2%

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

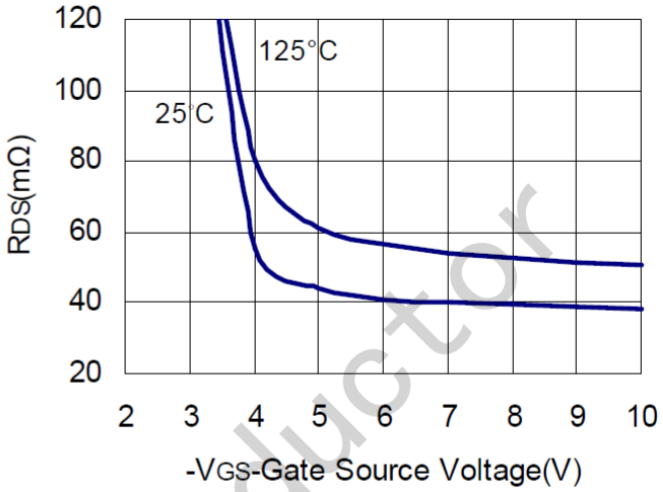
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■ *TYPICAL CHARACTERISTICS (25℃ Unless Note)*

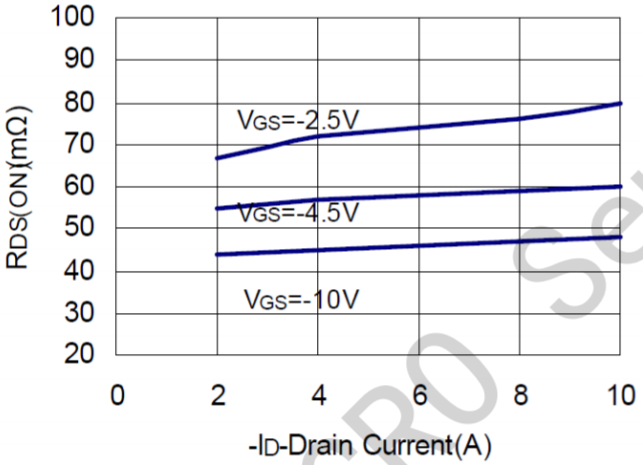
Output Characteristics



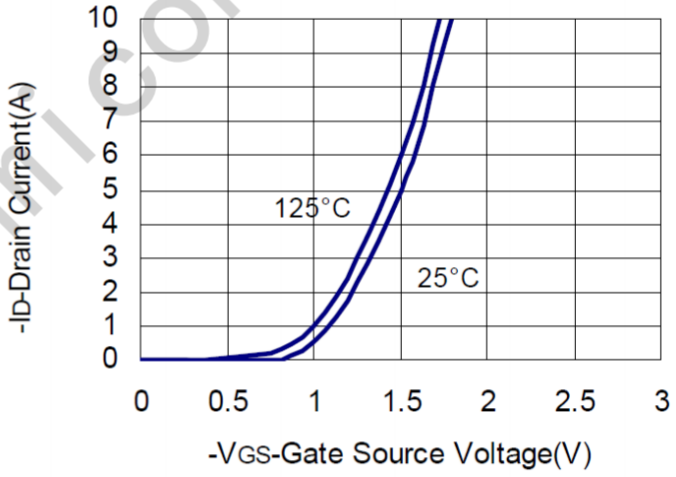
Drain-Source On Resistance



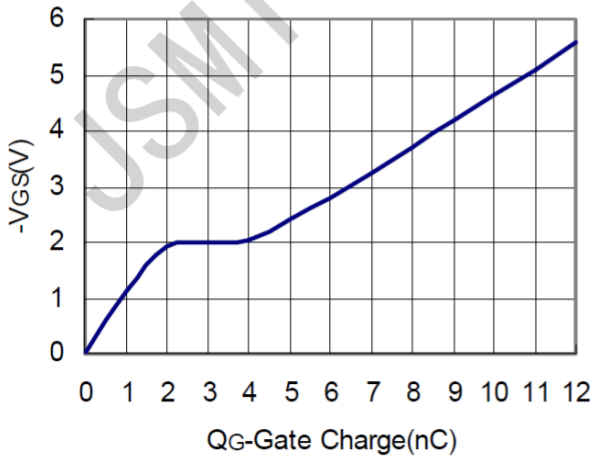
Drain Source On Resistance



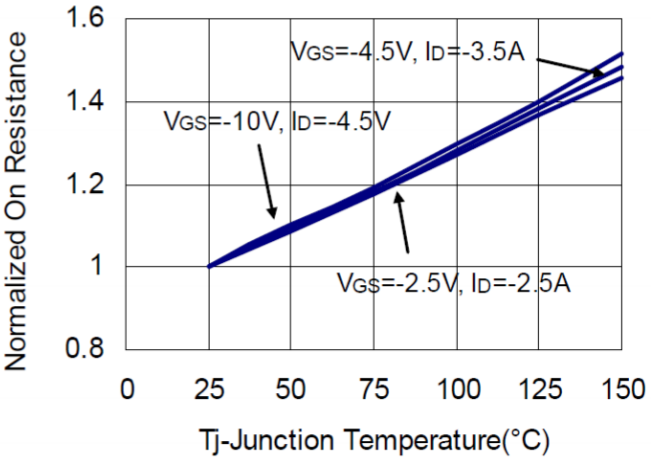
Transfer Characteristics



Gate Charge



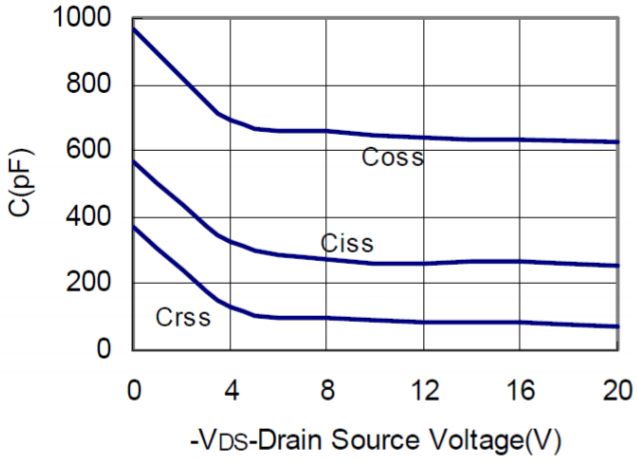
Drain Source Resistance



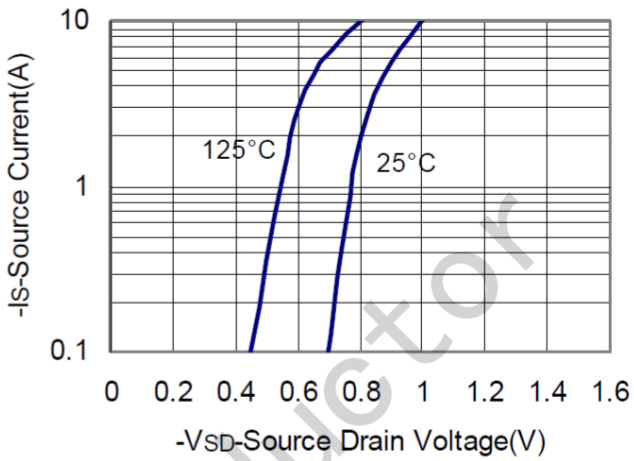
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■ *TYPICAL CHARACTERISTICS (continuous)*

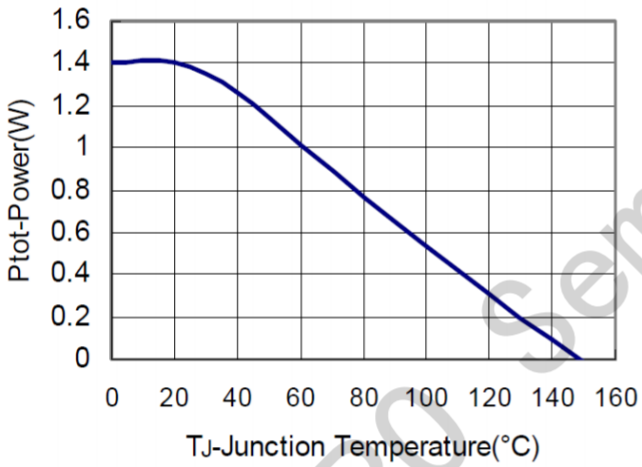
Capacitance



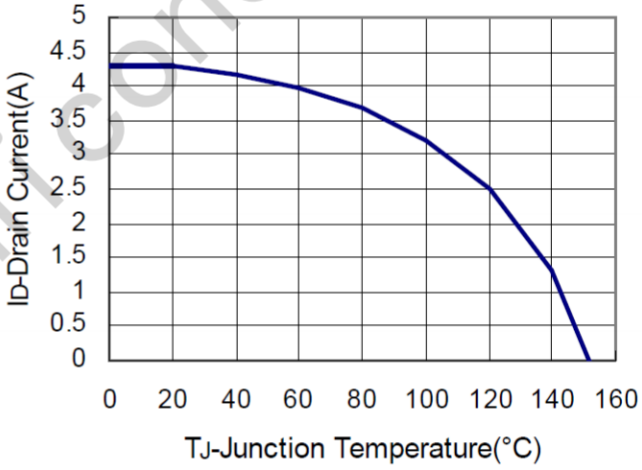
Source Drain Diode Forward



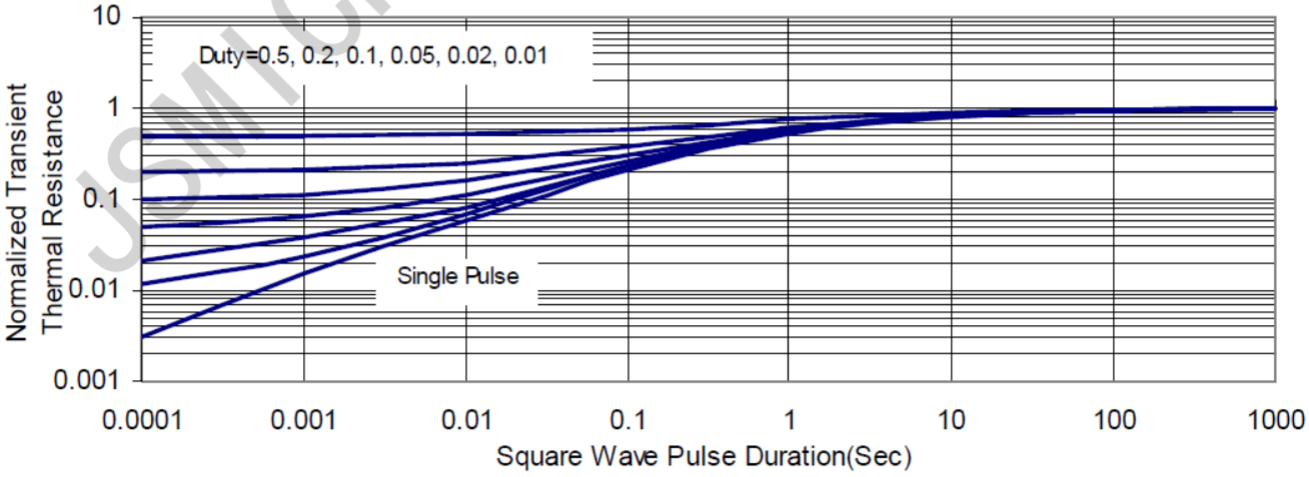
Power Dissipation



Drain Current



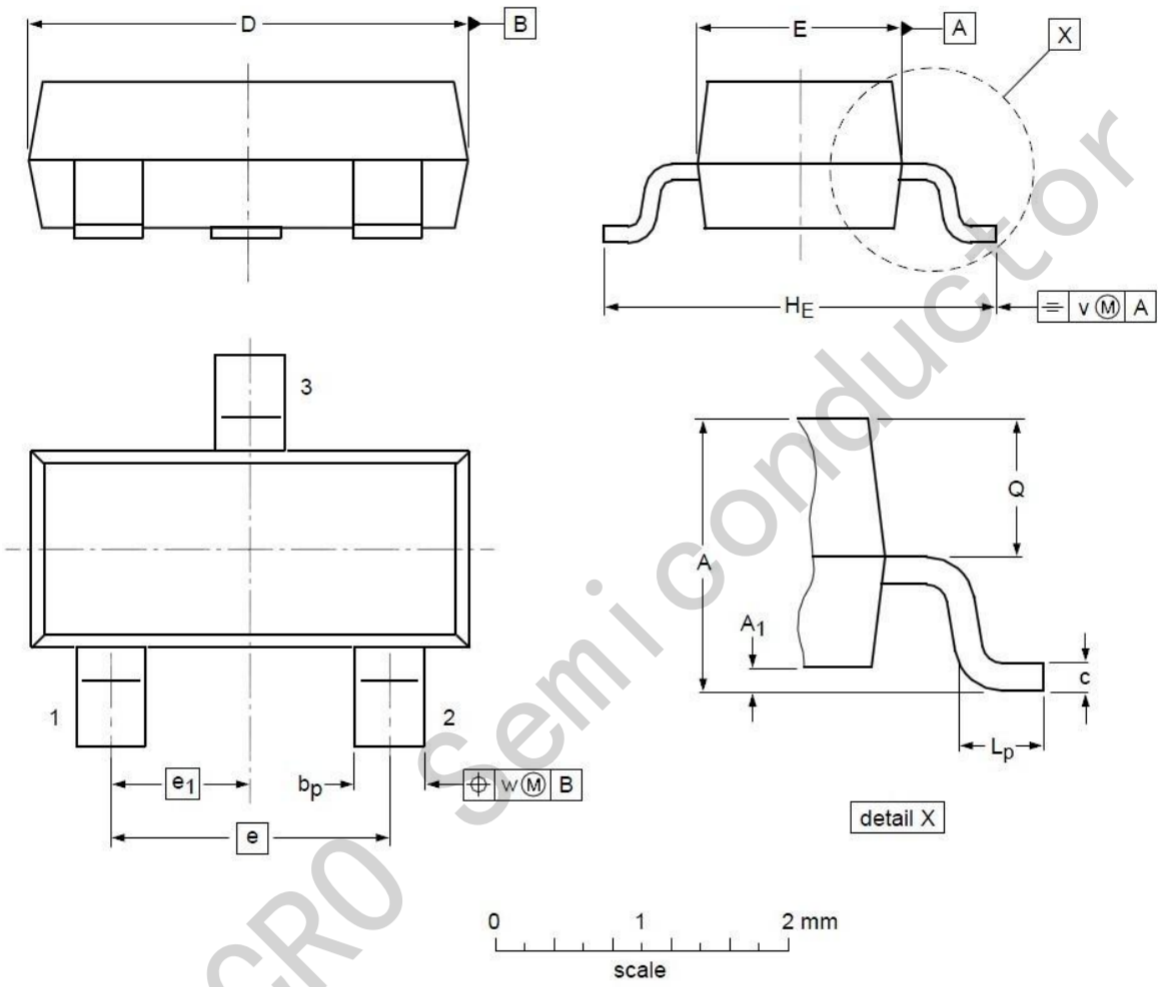
Thermal Transient Impedance



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Package Information

SOT-23-3



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DIMENSIONS (unit : mm)

Symbol	Min	Typ	Max	Symbol	Min	Typ	Max
A	0.90	1.01	1.15	**A_1**	0.01	0.05	0.10
b_p	0.30	0.42	0.50	**c**	0.08	0.13	0.15
D	2.80	2.92	3.00	**E**	1.20	1.33	1.40
e	--	1.90	--	**e_1**	--	0.95	--
H_E	2.25	2.40	2.55	**L_p**	0.30	0.42	0.50
Q	0.45	0.49	0.55	**v**	--	0.20	--
w	--	0.10	--				