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Si2325DST1-GE3
P-Channel 150-V (D-S) MOSFET

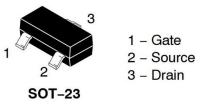
PRODUCT SUMMARY			
V_{DS} (V)	$R_{DS(on)}$ (Ω)	I_D (A)	Q_g (Typ.)
- 150	1.2 at V_{GS} = - 10 V	- 0.69	7.7
	1.3 at V_{GS} = - 6.0 V	- 0.66	

FEATURES

- **Halogen-free According to Available**
- TrenchFET® Power MOSFET
- Ultra Low On-Resistance
- Small Size

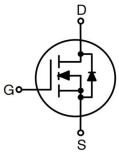
APPLICATIONS

- Active Clamp Circuits in DC/DC Power Supplies



SOT–23

1 – Gate
2 – Source
3 – Drain



* Marking Code

Ordering Information: Si2325DS -T1-E3 (Lead (Pb)-free)
Si2325DS -T1-GE3 (Lead (Pb)-free and Halogen-free)

ABSOLUTE MAXIMUM RATINGS T_A = 25 °C, unless otherwise noted					
Parameter		**Symbol**	**5 s**	**Steady State**	**Unit**
Drain-Source Voltage		V_{DS}	- 150		V
Gate-Source Voltage		V_{GS}	± 20		
Continuous Drain Current (T_J = 150 °C)[a, b]	T_A = 25 °C	I_D	- 0.69	- 0.53	A
	T_A = 70 °C		- 0.55	- 0.43	
Pulsed Drain Current		I_{DM}	- 1.6		
Continuous Source Current (Diode Conduction)[a, b]		I_S	- 1.0	- 0.6	
Single Pulse Avalanche Current	L = 1.0 mH	I_{AS}	4.5		
Single Pulse Avalanche Energy		E_{AS}	1.01		mJ
Maximum Power Dissipation[a, b]	T_A = 25 °C	P_D	1.25	0.75	W
	T_A = 70 °C		0.8	0.48	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	- 55 to 150		°C

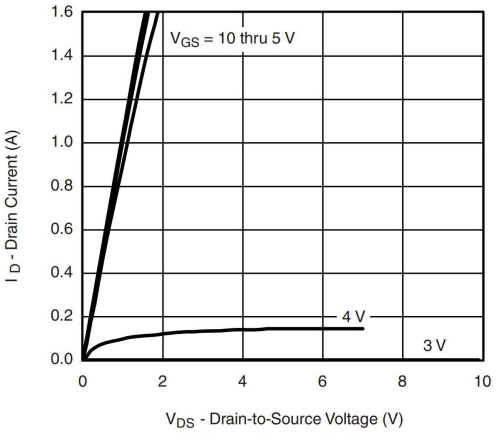
THERMAL RESISTANCE RATINGS					
Parameter		**Symbol**	**Typical**	**Maximum**	**Unit**
Maximum Junction-to-Ambient[a]	t ≤ 5 s	R_{thJA}	75	100	°C/W
	Steady State		120	166	
Maximum Junction-to-Foot (Drain)	Steady State	R_{thJF}	40	50	

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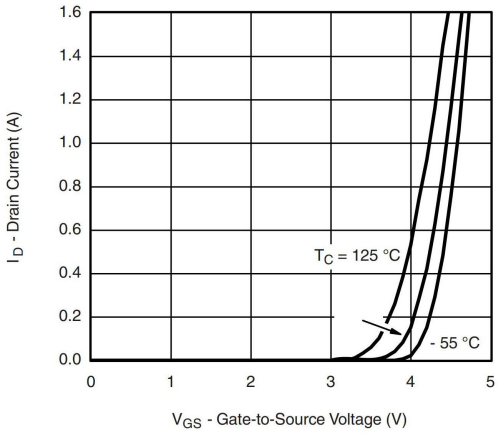
SPECIFICATIONS T_J = 25 °C, unless otherwise noted						
Parameter	**Symbol**	**Test Conditions**	**Limits**			**Unit**
			Min.	**Typ.**	**Max.**	
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0 V, I_D = - 250 µA	- 150			V
Gate-Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = - 250 µA	- 2.5		- 4.5	
Gate-Body Leakage	I_{GSS}	V_{DS} = 0 V, V_{GS} = ± 20 V			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = - 150 V, V_{GS} = 0 V			- 1	µA
		V_{DS} = - 150 V, V_{GS} = 0 V, T_J = 55 °C			- 10	
On-State Drain Current[a]	$I_{D(on)}$	$V_{DS} \leq$ - 15 V, V_{GS} = 10 V	- 1.6			A
Drain-Source On-Resistance[a]	$R_{DS(on)}$	V_{GS} = - 10 V, I_D = - 0.5 A		1.0	1.2	Ω
		V_{GS} = - 6.0 V, I_D = - 0.5 A		1.05	1.3	
Forward Transconductance[a]	g_{fs}	V_{DS} = - 15 V, I_D = - 0.5 A		2.2		S
Diode Forward Voltage	V_{SD}	I_S = - 1.0 A, V_{GS} = 0 V		0.7	- 1.2	V
Dynamic[b]						
Total Gate Charge	Q_g	V_{DS} = - 75 V, V_{GS} = 10 V, $I_D \cong$ - 0.5 A		7.7	12	nC
Gate-Source Charge	Q_{gs}			1.5		
Gate-Drain Charge	Q_{gd}			2.5		
Gate Resistance	R_g	f = 1.0 MHz		9		Ω
Input Capacitance	C_{iss}	V_{DS} = - 25 V, V_{GS} = 0 V, f = 1 MHz		340	510	pF
Output Capacitance	C_{oss}			30		
Reverse Transfer Capacitance	C_{rss}			16		
Switching[c]						
Turn-On Time	$t_{d(on)}$	V_{DD} = - 75 V, R_L = 75 Ω, $I_D \cong$ - 1.0 A, V_{GEN} = - 10 V, R_g = 6 Ω		7	11	ns
	t_r			11	17	
Turn-Off Time	$t_{d(off)}$			16	25	
	t_f			11	17	
Body Diode Reverse Recovery Charge	Q_{rr}	I_F = 0.5 A, dI/dt = 100 A/µs		90	135	nC

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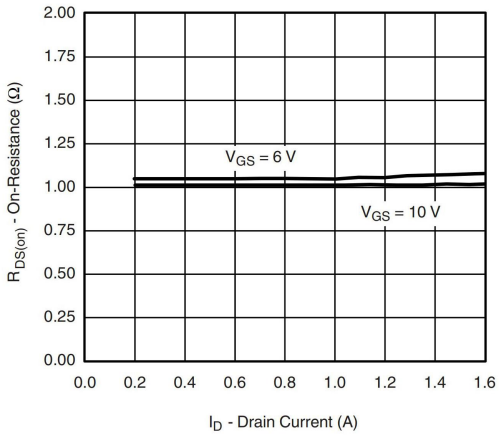
TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted



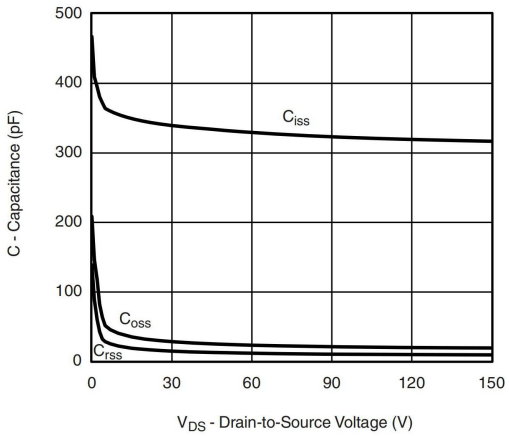
Output Characteristics



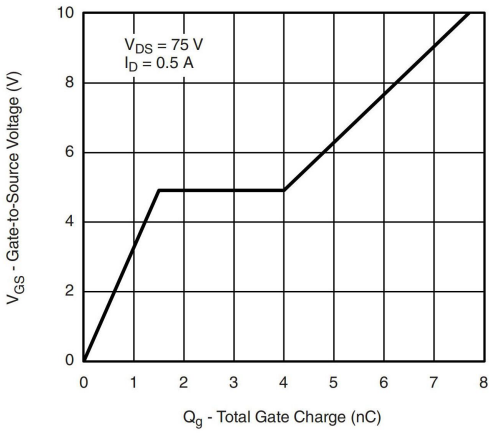
Transfer Characteristics



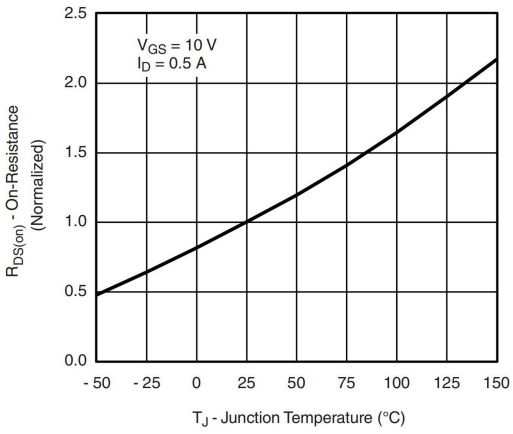
On-Resistance vs. Drain Current



Capacitance



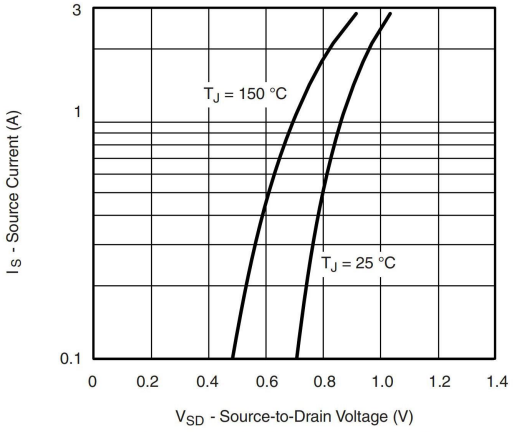
Gate Charge



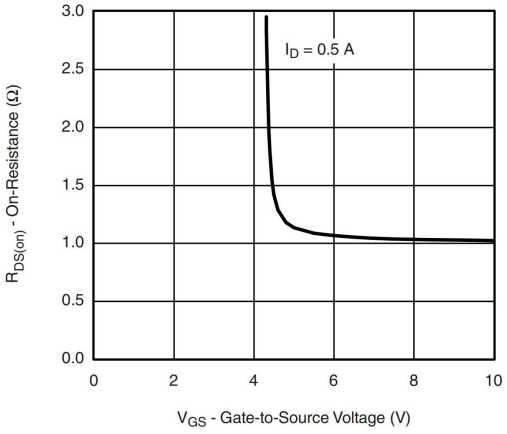
On-Resistance vs. Junction Temperature

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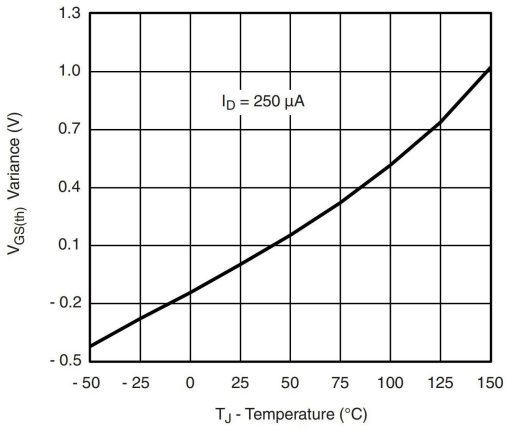
TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted



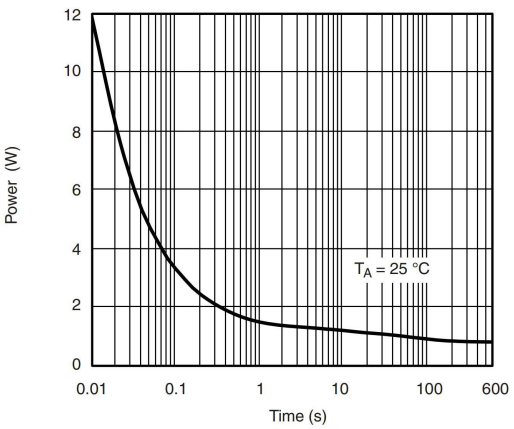
Source-Drain Diode Forward Voltage



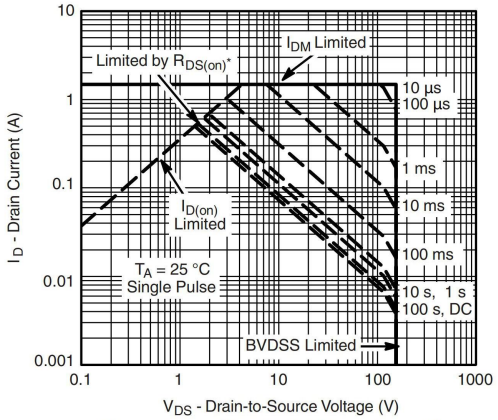
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



Single Pulse Power

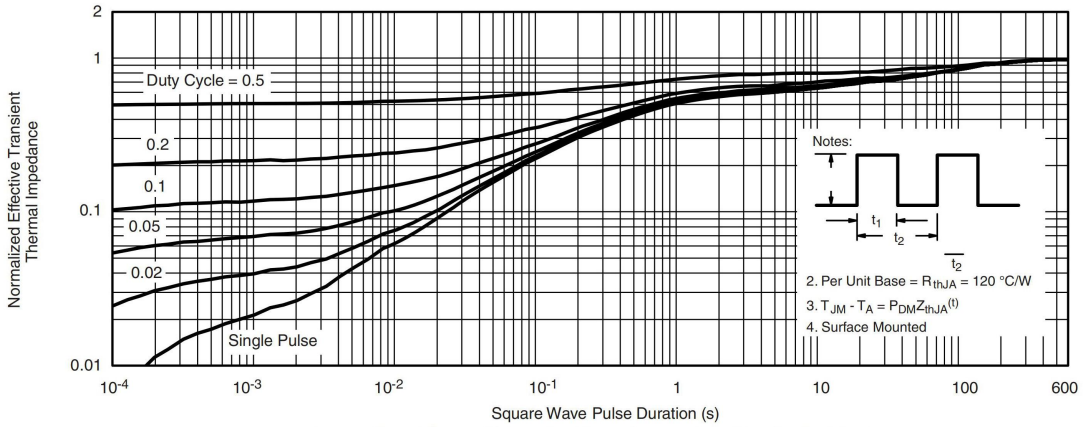


* V_{GS} > minimum V_{GS} at which $R_{DS(on)}$ is specified

Safe Operating Area

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TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted



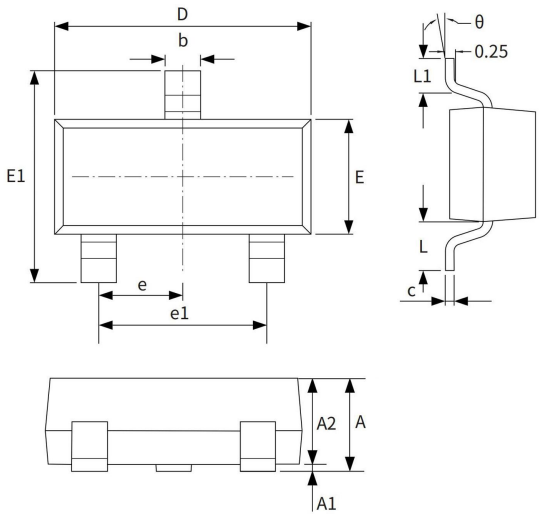
Normalized Thermal Transient Impedance, Junction-to-Ambient

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Ordering Information

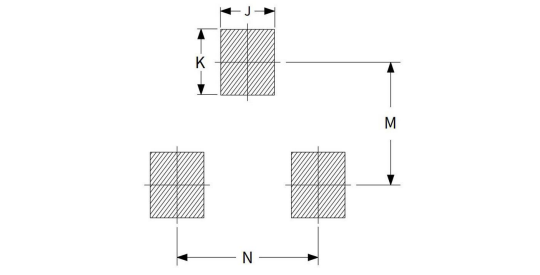
PACKAGE	PACKAGE CODE	UNIT WEIGHT(g)	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
SOT-23	R1	0.008	3000	30000	240000	7''

Package Outline Dimensions (SOT-23)



Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.90	1.15	0.035	0.045
A1	-	0.10	-	0.004
A2	0.90	1.05	0.035	0.041
b	0.30	0.50	0.012	0.020
c	0.10	0.20	0.004	0.008
D	2.80	3.00	0.110	0.118
E	1.20	1.40	0.047	0.055
E1	2.25	2.55	0.089	0.100
e	0.950TYP		0.037TYP	
e1	1.80	2.00	0.071	0.079
L	0.550REF		0.022REF	
L1	0.30	0.50	0.012	0.020
θ	-	8°	-	8°

Suggested Pad Layout



Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
J	0.75	0.85	0.030	0.033
K	0.85	0.95	0.033	0.037
M	1.95	2.05	0.077	0.081
N	1.85	1.95	0.073	0.077