



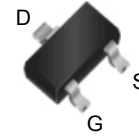
N-Channel 50V,ESD Protection, N-MOSFET

FEATURES

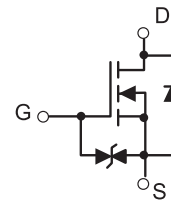
- $R_{DS(ON)} \leq 3.5\Omega @ V_{GS}=10V$
- $R_{DS(ON)} \leq 4\Omega @ V_{GS}=4.5V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability

APPLICATIONS

- Power Management in Note book
- DC/DC Converter
- Load Switch
- LCD Display inverter



SOT-523



ABSOLUTE MAXIMUM RATINGS (T _A = 25°C UNLESS OTHERWISE NOTED)					
Parameter		Symbol	5 secs	Steady State	Unit
Drain-Source Voltage		V _{DS}	50		V
Gate-Source Voltage		V _{GS}	± 20		
Continuous Drain Current (T _J = 150°C)	T _A = 25°C	I _D	250	200	mA
	T _A = 85°C		200	100	
Pulsed Drain Current ^a		I _{DM}	1000		
Continuous Source Current (diode conduction)		I _S	275	250	
Maximum Power Dissipation for SOT523	T _A = 25°C	P _D	275	250	mW
	T _A = 85°C		160	140	
Operating Junction and Storage Temperature Range		T _J , T _{stg}	-55 to 150		°C

Notes

Pulse width limited by maximum junction temperature.
Surface Mounted on FR4 Board.

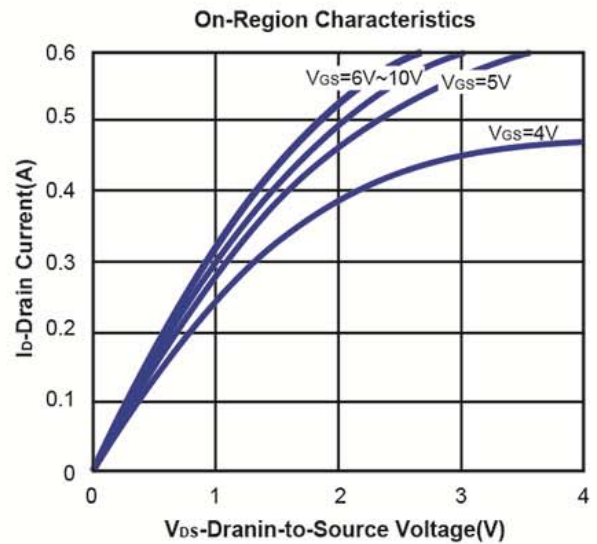
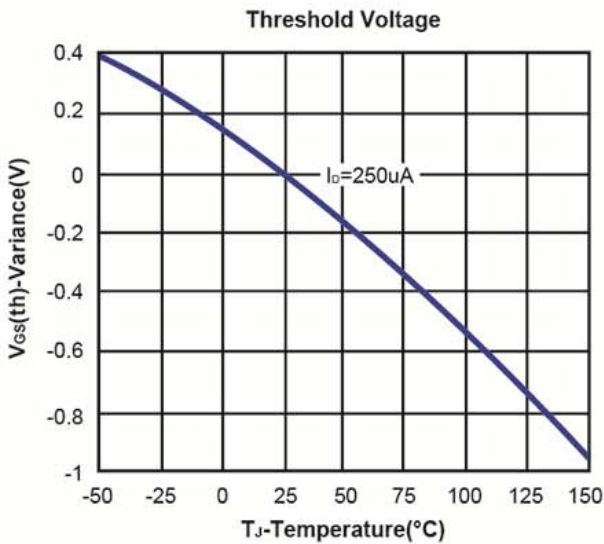
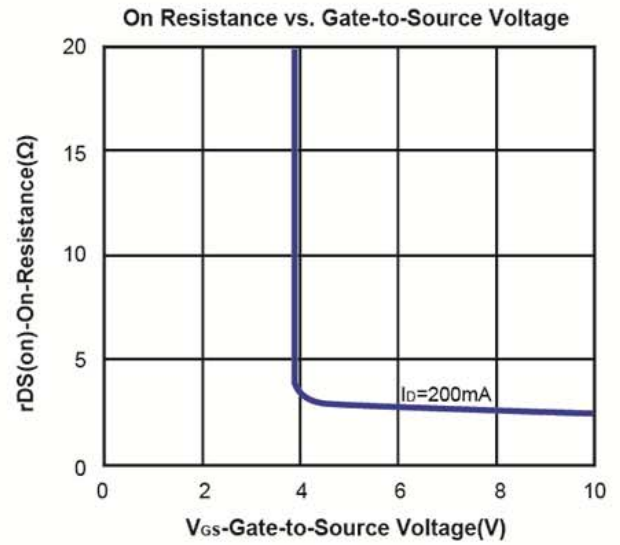
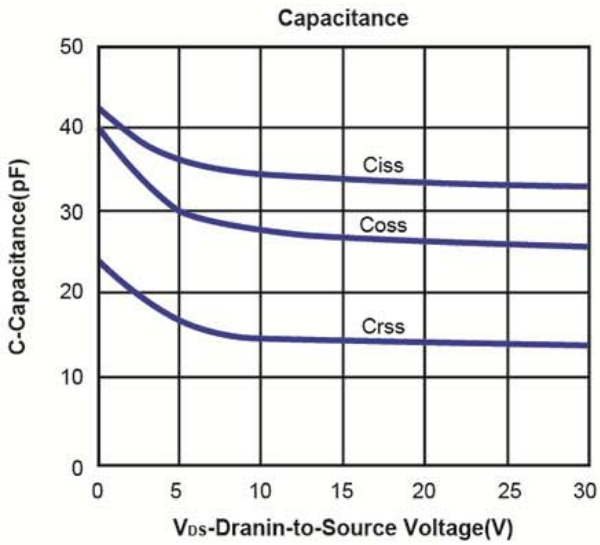
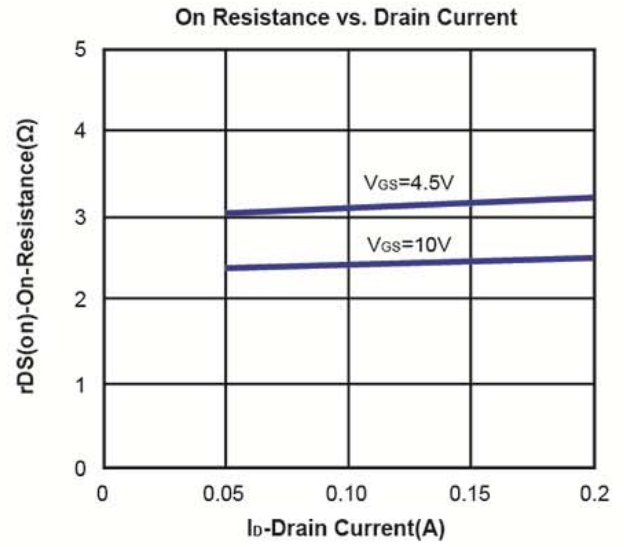
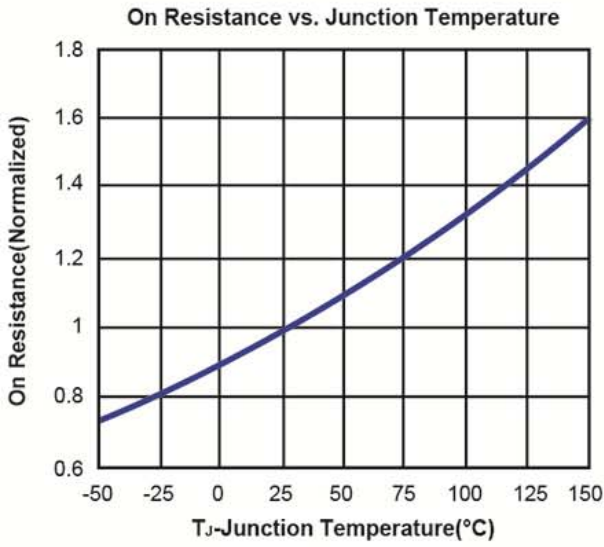


N-Channel 50V (D-S) MOSFET, ESD Protection

Electrical Characteristics (TA=25°C Unless Otherwise Specified)

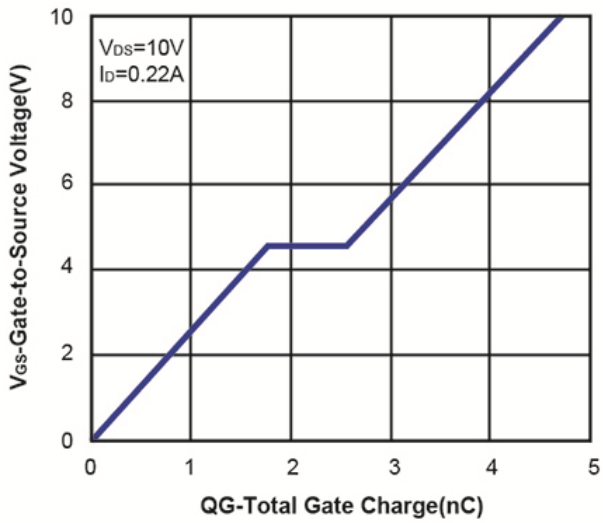
Symbol	Parameter	Limit	Min	Typ	Max	Unit
STATIC						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250 μA	50			V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =1mA	0.6		1.5	V
I _{GSS}	Gate Leakage Current	V _{DS} =0V, V _{GS} =±20V			±10	μA
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =50V, V _{GS} =0V			1	μA
R _{DS(ON)}	Drain-Source On-Resistance ^a	V _{GS} =10V, I _D =200mA		2.5	3.5	Ω
		V _{GS} =4.5V, I _D =200mA		3.1	4	
V _{SD}	Diode Forward Voltage	I _S =0.44A, V _{GS} =0V		0.8	1.4	V
DYNAMIC						
Q _g	Total Gate Charge	V _{DS} =25V, V _{GS} =10V, I _D =0.22A		4.7		nC
Q _{gs}	Gate Source Charge			1.7		
Q _{gd}	Gate-Drain Charge			0.8		
C _{iss}	Input Capacitance	V _{DS} =25V, V _{GS} =0V, f=1MHZ		33		pf
C _{oss}	Output Capacitance			25		
C _{rss}	Reverse Transfer Capacitance			13		
t _{d(on)}	Turn-On Delay Time	V _{DD} =5V, R _L =500Ω, V _{GEN} =5V, R _G =10Ω		10.1		ns
t _r	Turn-On Rise Time			7.3		
t _{d(off)}	Turn-Off Delay Time			31.3		
t _f	Turn-Off Fall Time			28.2		

Notes: a. Pulse test: pulse width ≤ 300us, duty cycle ≤ 2%, Guaranteed by design, not subject to production testing.

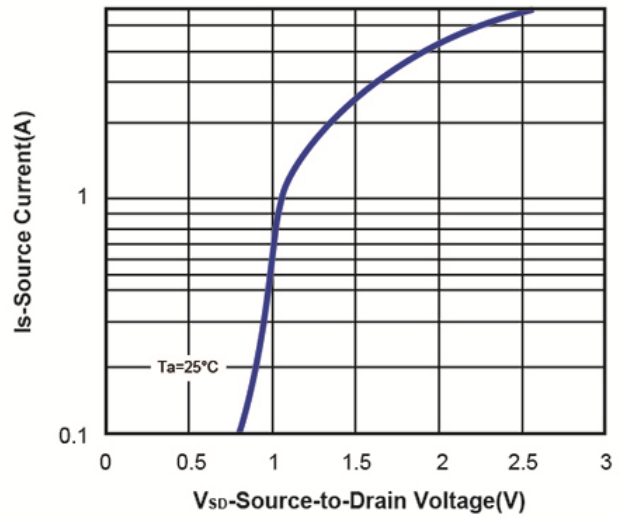




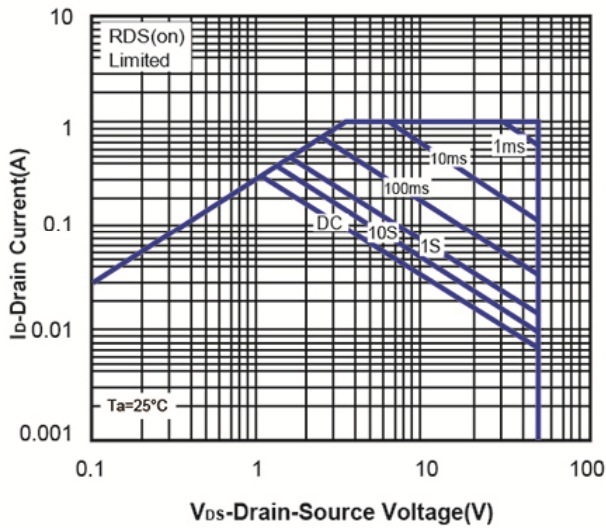
Gate Charge



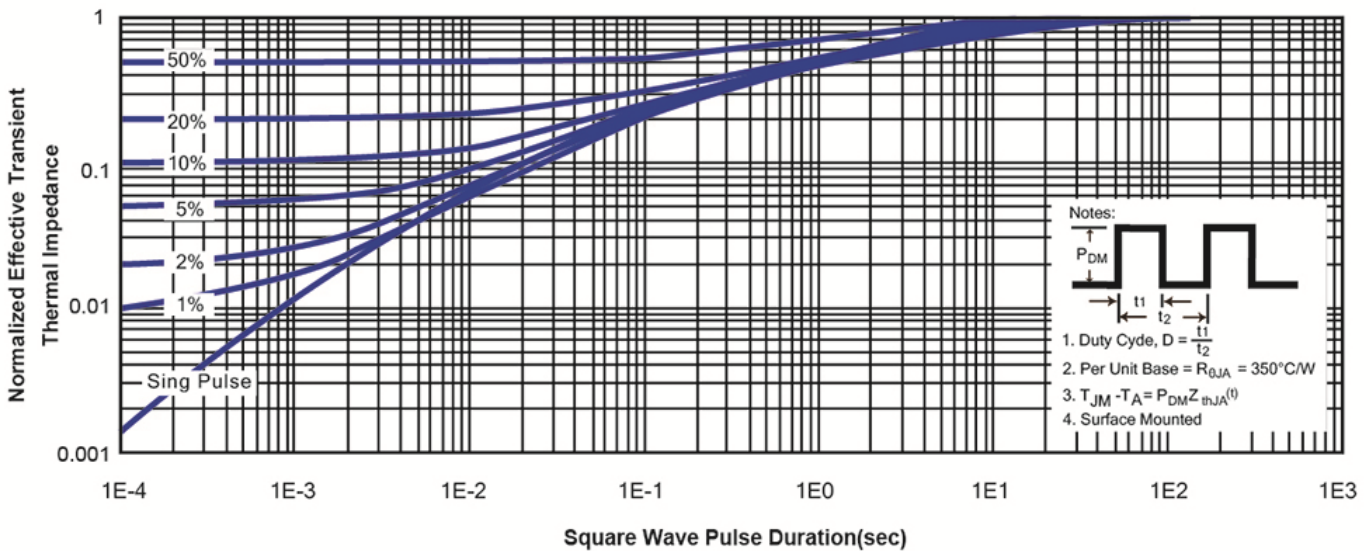
Body-diode characteristics



Maximum Forward Biased Safe Operating Area

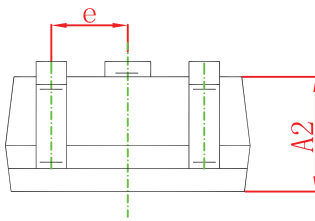
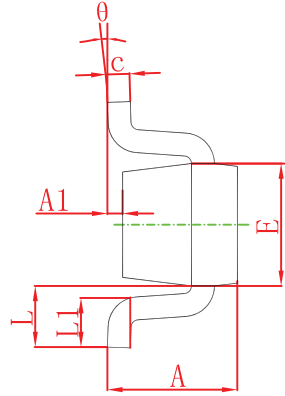
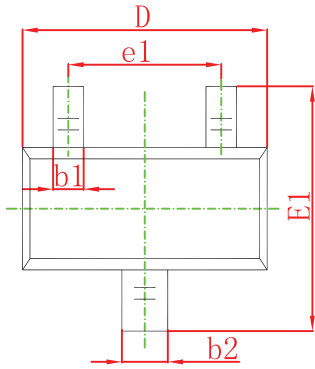


Normalized Thermal Transient Impedance, Junction-to-Ambient



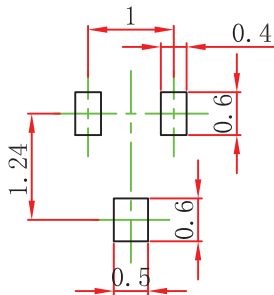


SOT-523 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.900	0.028	0.035
A1	0.000	0.100	0.000	0.004
A2	0.700	0.800	0.028	0.031
b1	0.150	0.250	0.006	0.010
b2	0.250	0.350	0.010	0.014
c	0.100	0.200	0.004	0.008
D	1.500	1.700	0.059	0.067
E	0.700	0.900	0.028	0.035
E1	1.450	1.750	0.057	0.069
e	0.500 TYP.		0.020 TYP.	
e1	0.900	1.100	0.035	0.043
L	0.400 REF.		0.016 REF.	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

SOT-523 Suggested Pad Layout



Note:

1. Controlling dimension: in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.

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