

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
-20V	0.75Ω@-4.5V	-0.66A
	1Ω@-2.5V	

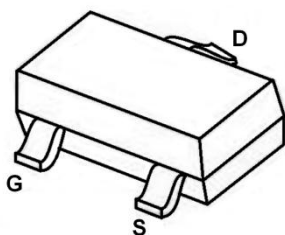
Feature

- High power and current handling capability
- Surface mount package
- ESD protected

Application

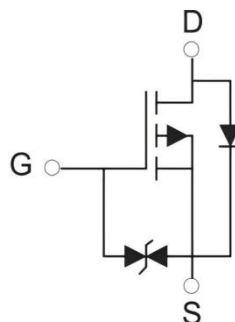
- Battery Switch
- DC / DC Converter

Package

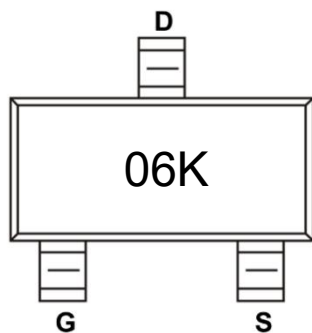


SOT-323

Circuit diagram



Marking



Absolute maximum ratings ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current	I_D	-0.66	A
Pulsed Drain Current	I_{DM}	-2.64	A
Power Dissipation	P_D	0.2	W
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	625	$^{\circ}\text{C/W}$
Operating Junction Temperature	T_J	$-55 \sim +150$	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	$-55 \sim +150$	$^{\circ}\text{C}$

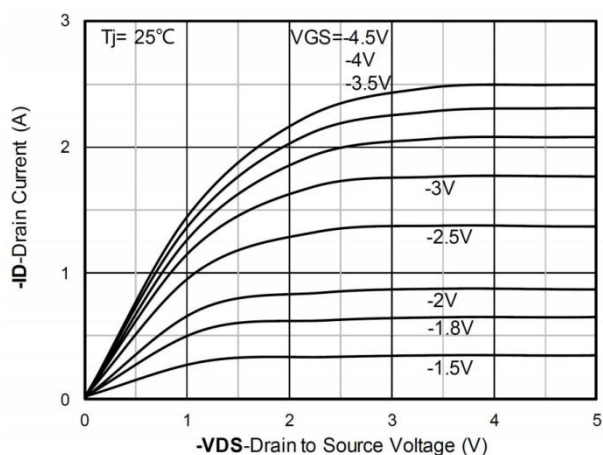
Electrical characteristics ($T_A=25^{\circ}\text{C}$, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =-250μA	-20			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =-16V, V _{GS} =0V			-1	μA
Gate-body leakage current	I _{GSS}	V _{DS} =0V, V _{GS} =±12V			±10	μA
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-0.35	-0.65	-1	V
Drain-source on-resistance	R _{DS(on)}	V _{GS} =-4.5V, I _D =-0.5A		0.65	0.75	Ω
		V _{GS} =-2.5V, I _D =-0.2A		0.85	1	
Dynamic characteristics ¹⁾						
Input Capacitance	C _{iss}	V _{DS} =-10V, V _{GS} =0V, f =1MHz		75		pF
Output Capacitance	C _{oss}			20		
Reverse Transfer Capacitance	C _{rss}			14		
Total Gate Charge	Q _g	V _{DS} =-10V, V _{GS} =-4.5V I _D =-0.5A		1.25		nC
Gate-Source Charge	Q _{gs}			0.35		
Gate-Drain Charge	Q _{gd}			0.27		
Turn-on delay time	t _{d(on)}	V _{DS} =-10V, V _{GS} =-4.5V R _G =3Ω, R _L =2.5Ω		5		nS
Turn-on rise time	t _r			19		
Turn-off delay time	t _{d(off)}			15		
Turn-off fall time	t _f			24		
Source-Drain Diode characteristics						
Diode Forward Current	I _S				-0.66	A
Diode Forward voltage	V _{SD}	V _{GS} =0V, I _S =-1A, T _J =25℃			-1.2	V

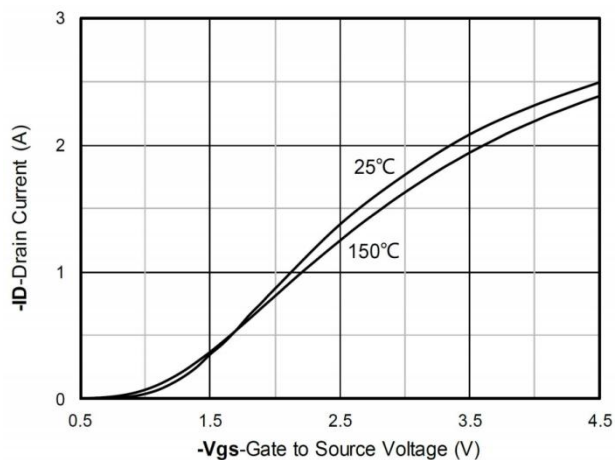
Notes:

1) Guaranteed by design, not subject to production.

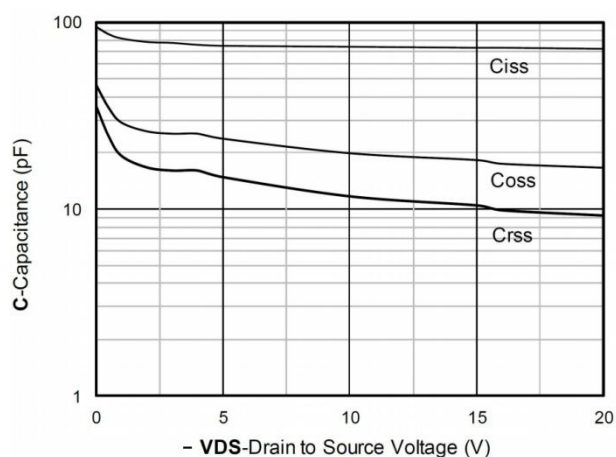
Typical Characteristics



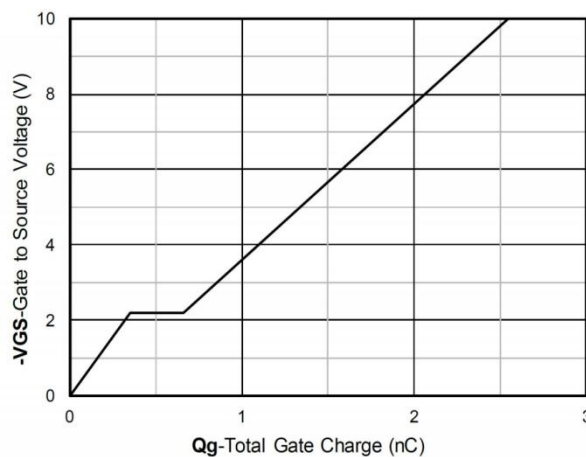
Output Characteristics



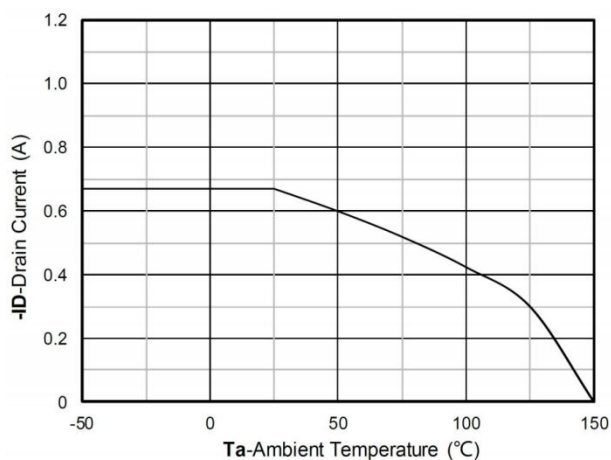
Transfer Characteristics



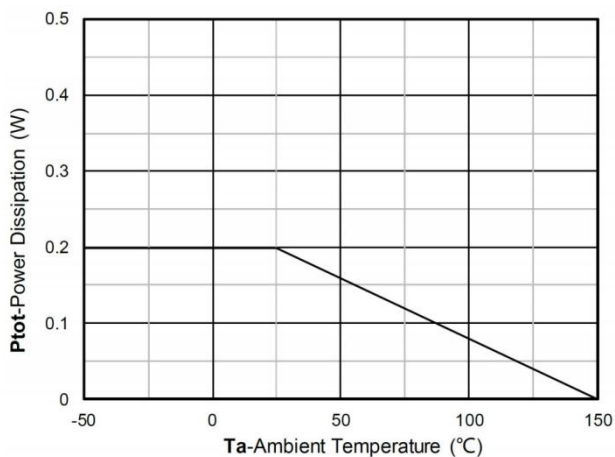
Capacitance Characteristics



Gate Charge

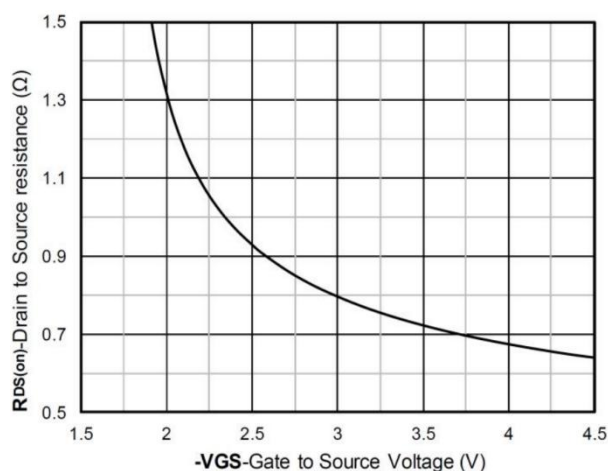


Current dissipation

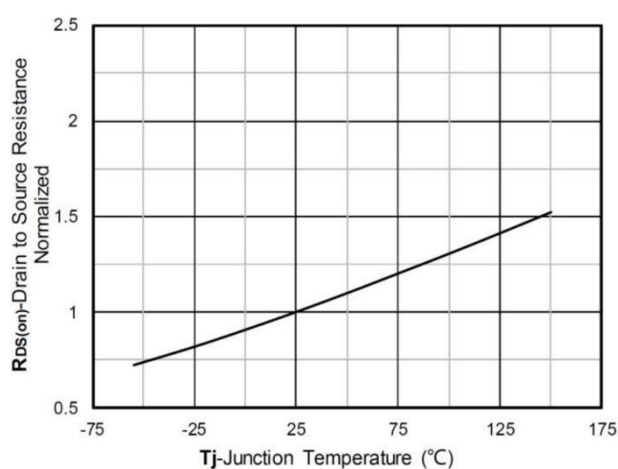


Power dissipation

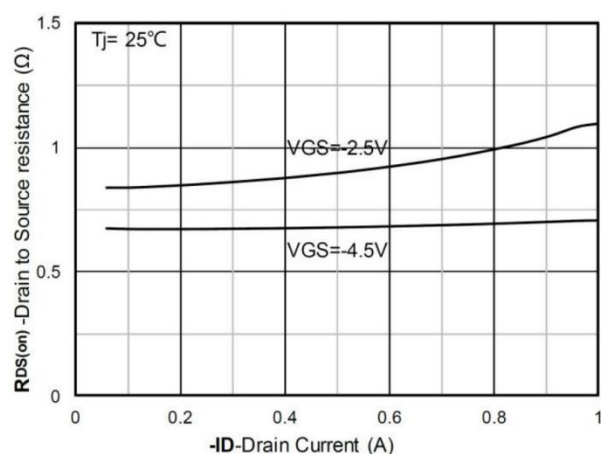
Typical Characteristics



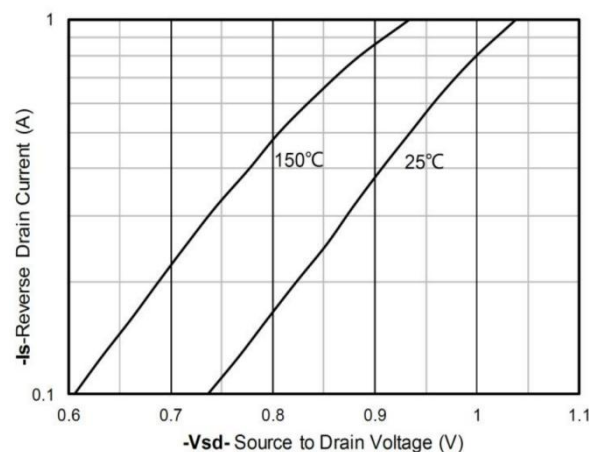
On-Resistance vs Gate to Source Voltage



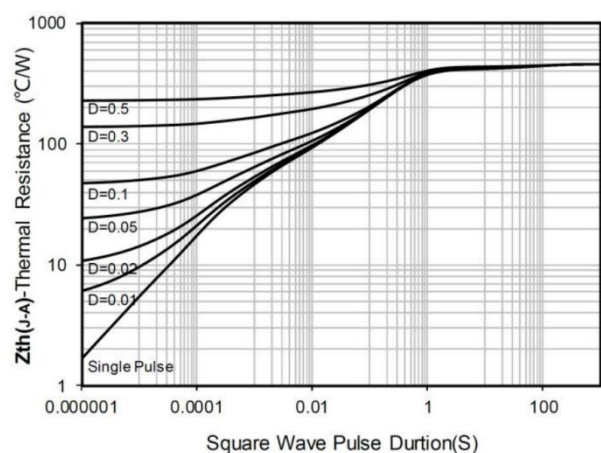
Normalized On-Resistance



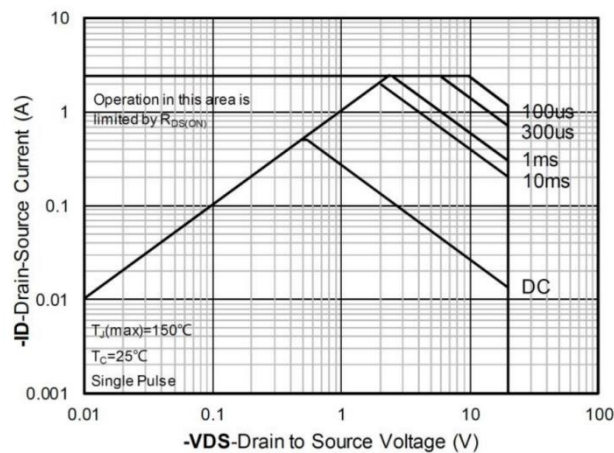
$R_{DS(on)}$ VS Drain Current



Forward characteristics of reverse diode

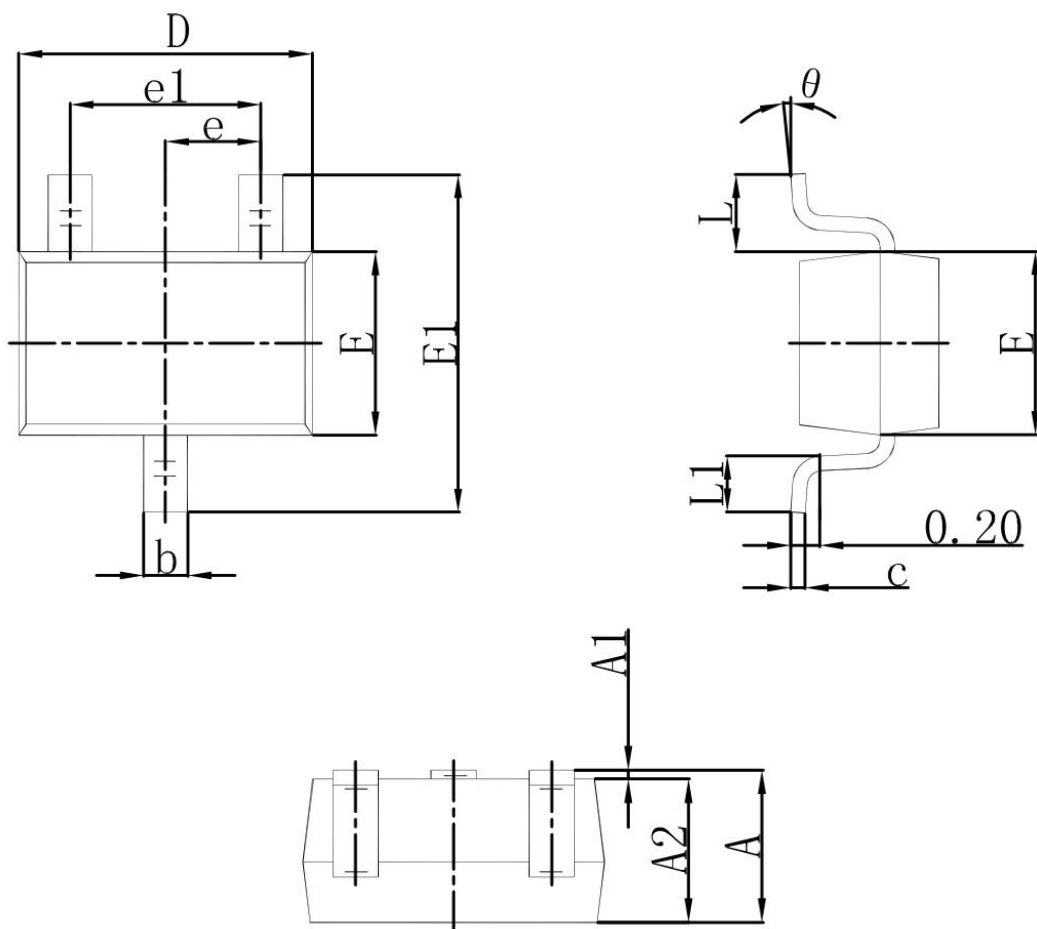


Maximum Transient Thermal Impedance



Safe Operation Area

SOT-323 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.150	0.400	0.006	0.016
c	0.080	0.250	0.003	0.016
D	1.800	2.200	0.071	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650 TYP.		0.026 TYP.	
e1	1.200	1.400	0.047	0.055
L	0.525 REF.		0.021 REF.	
L1	0.250	0.460	0.010	0.018
θ	0°	8°	0°	8°