



N-Channel Enhancement Mode Field Effect Transistor

PRODUCT SUMMARY

V _{DSS}	I _D	R _{DS(ON)} (Ω) Typ
400V	1.5A	3.5 @ V _{GS} =10V

FEATURES

- Super high dense cell design for low R_{DS(ON)}.
- Rugged and reliable.
- Surface Mount Package.



ABSOLUTE MAXIMUM RATINGS (T_A=25°C unless otherwise noted)

Symbol	Parameter	Limit	Units
V _{DS}	Drain-Source Voltage	400	V
V _{GS}	Gate-Source Voltage	±30	V
I _D	Drain Current-Continuous ^a	1.5	A
I _{DM}	-Pulsed ^b	6	A
P _D	Maximum Power Dissipation ^b	2.98	W
T _J , T _{STG}	Operating Junction and Storage Temperature Range	-55 to 150	°C

THERMAL CHARACTERISTICS

Symbol	Parameter	Limit	Units
R _{θJA}	Thermal Resistance, Junction-to-Ambient ^a	42	°C/W

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ELECTRICAL CHARACTERISTICS (TA=25°C unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
OFF CHARACTERISTICS						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	400			V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =320V, V _{GS} =0V			1	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} = ±30V, V _{DS} =0V			±100	nA
ON CHARACTERISTICS						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	2	2.9	4	V
R _{DS(ON)}	Drain-Source On-State Resistance	V _{GS} =10V, I _D =1A		3.5	4.0	ohm
g _{FS}	Forward Transconductance	V _{DS} =10V, I _D =1A		0.9		S
DYNAMIC CHARACTERISTICS °						
C _{ISS}	Input Capacitance	V _{DS} =25V, V _{GS} =0V f=1.0MHz		186		pF
C _{OSS}	Output Capacitance			31		pF
C _{RSS}	Reverse Transfer Capacitance			6.3		pF
SWITCHING CHARACTERISTICS °						
t _{D(ON)}	Turn-On Delay Time	V _{DD} =200V I _D =1A V _{GS} =10V R _{GEN} =25 ohm		13		ns
t _r	Rise Time			10		ns
t _{D(OFF)}	Turn-Off Delay Time			21		ns
t _f	Fall Time			5.5		ns
Q _g	Total Gate Charge	V _{DS} =200V, I _D =1A, V _{GS} =10V		4.4		nC
Q _{gs}	Gate-Source Charge	V _{DS} =200V, I _D =1A, V _{GS} =10V		1.2		nC
Q _{gd}	Gate-Drain Charge			1.6		nC
DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS						
I _S	Maximum Continuous Drain-Source Diode Forward Current				1	A
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _S =1A		0.79	1.4	V

Notes

- Surface Mounted on FR4 Board, t ≤ 10sec.
- Pulse Test: Pulse Width ≤ 300us, Duty Cycle ≤ 2%.
- Guaranteed by design, not subject to production testing.

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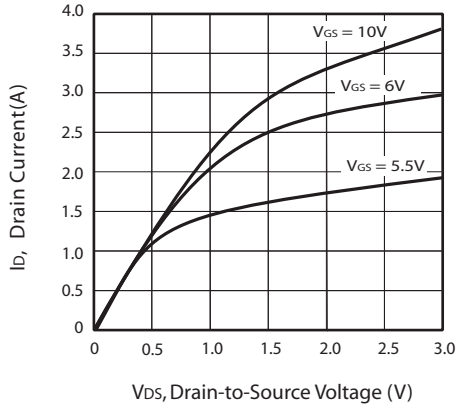


Figure 1. Output Characteristics

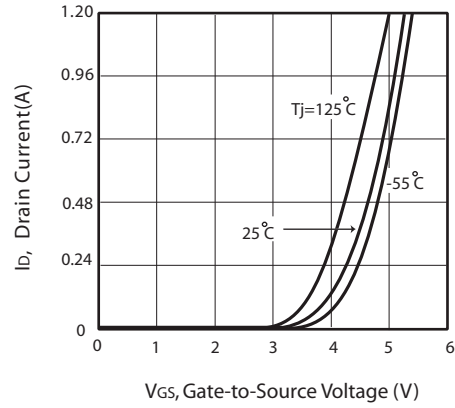


Figure 2. Transfer Characteristics

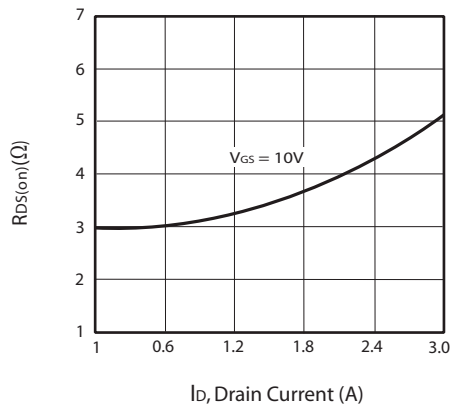


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

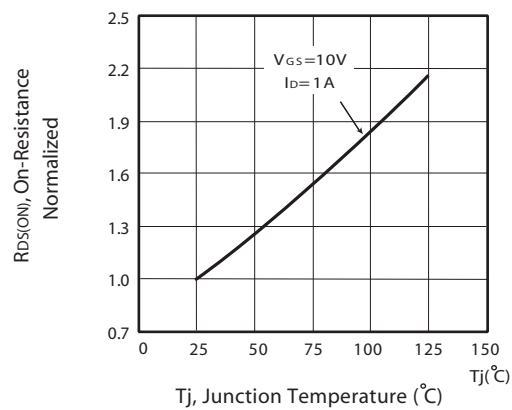


Figure 4. On-Resistance Variation with Drain Current and Temperature

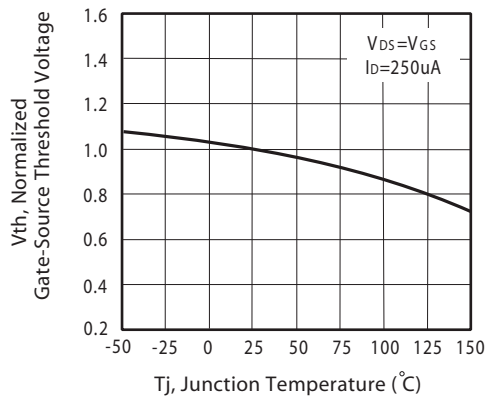


Figure 5. Gate Threshold Variation with Temperature

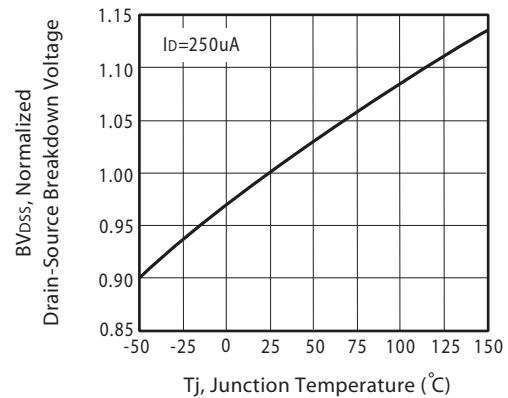


Figure 6. Breakdown Voltage Variation with Temperature

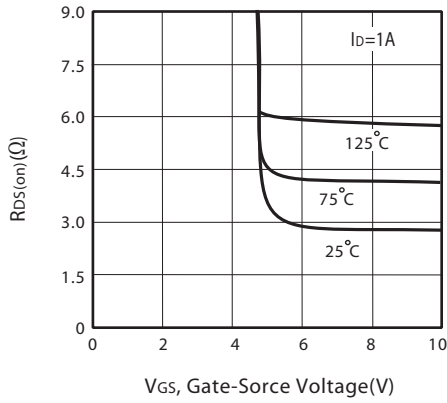


Figure 7. On-Resistance vs. Gate-Source Voltage

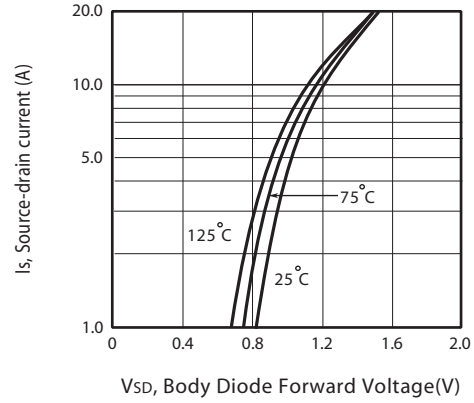


Figure 8. Body Diode Forward Voltage Variation with Source Current

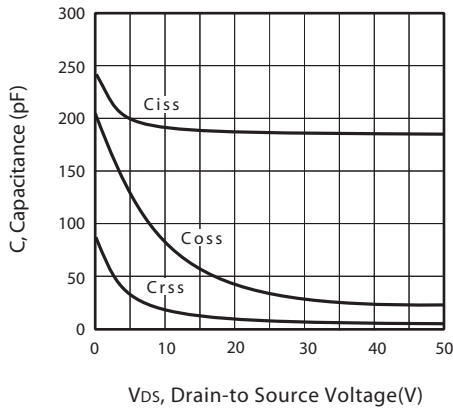


Figure 9. Capacitance

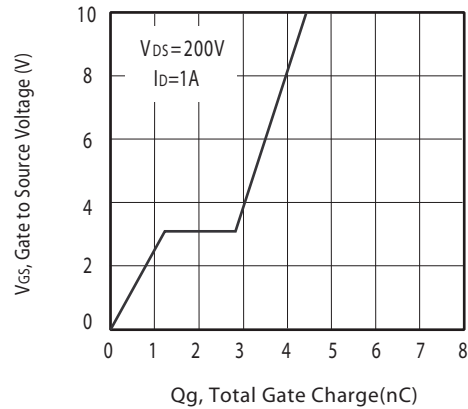


Figure 10. Gate Charge

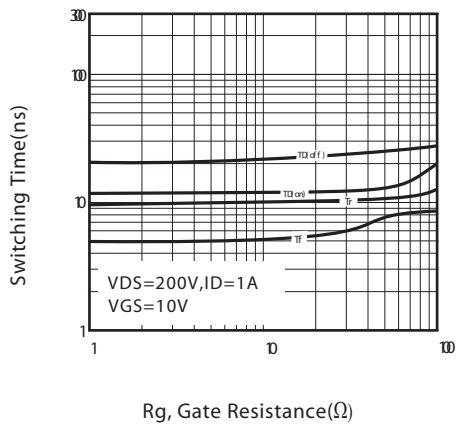


Figure 11. switching characteristics

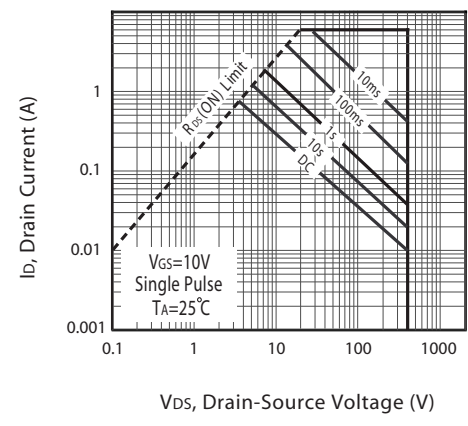


Figure 12. Maximum Safe Operating Area

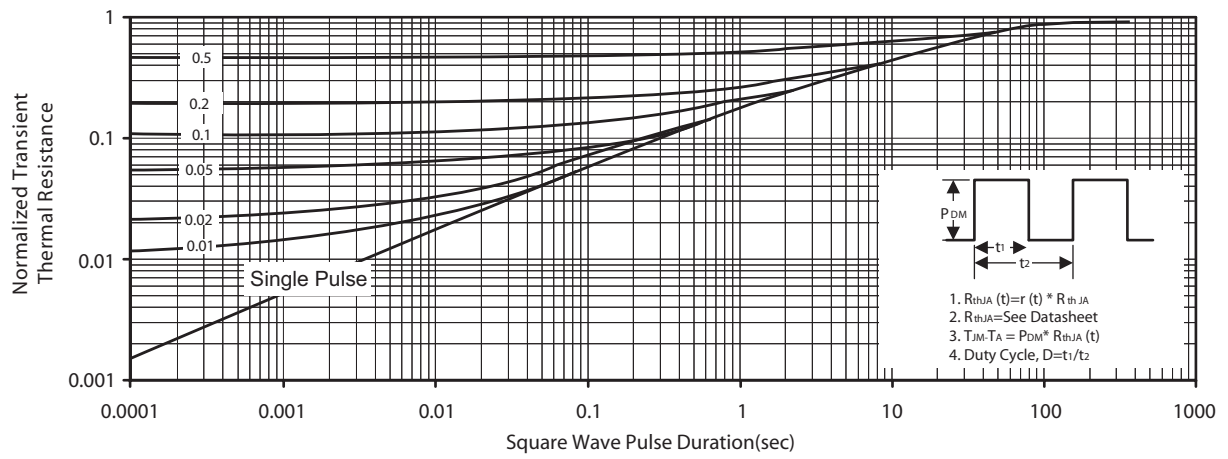
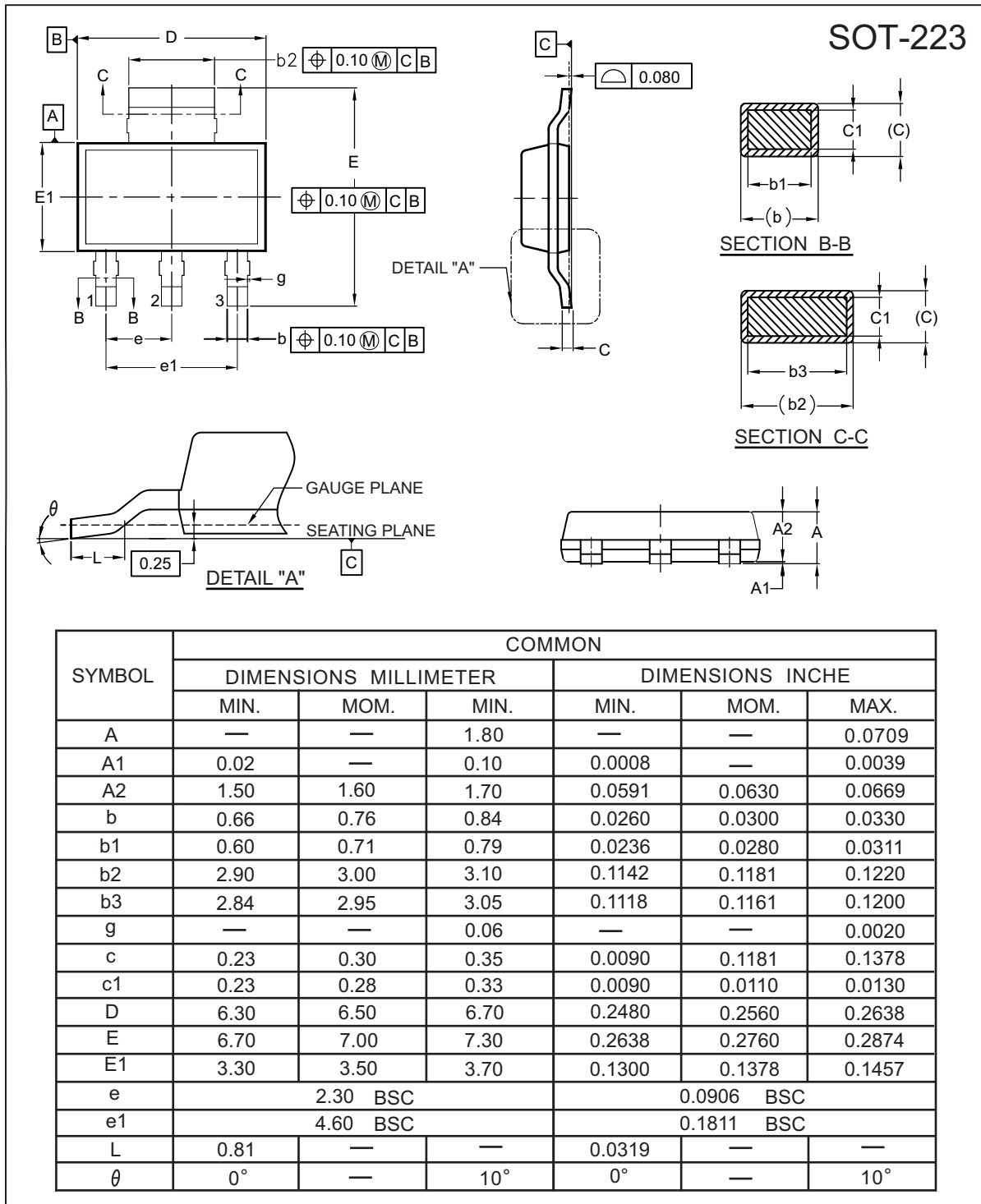


Figure 13. Normalized Thermal Transient Impedance Curve

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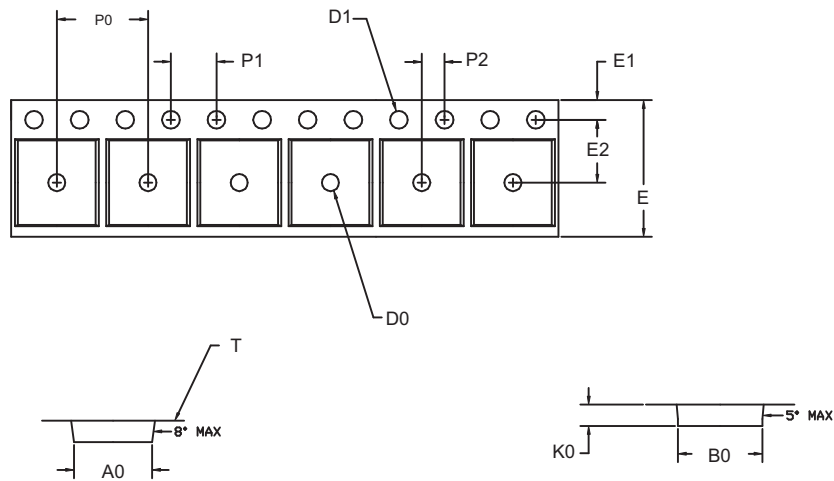
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SOT-223 Tape and Reel Data

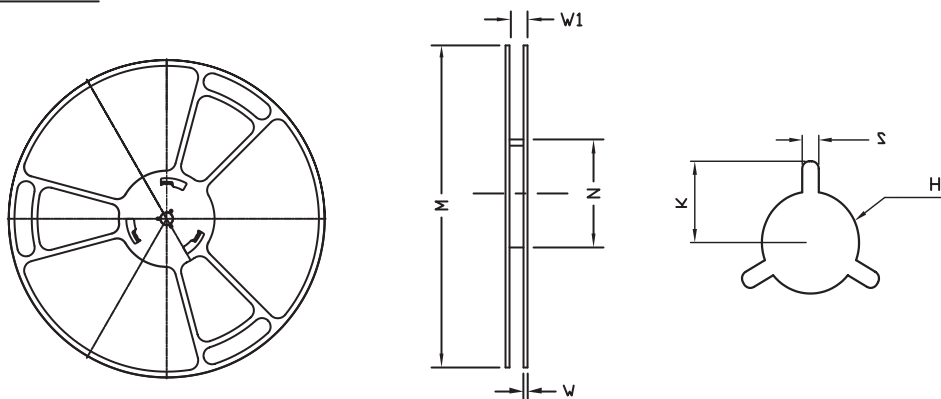
SOT-223 Carrier Tape



unit:mm

PACKAGE	A0	B0	K0	D0	D1	E	E1	E2	P0	P1	P2	T
---	6.83 ±0.1	7.42 ±0.1	1.88 ±0.1	1.50 + 0.25	1.60 + 0.1	12.0 + 0.3 - 0.1	1.75 ±0.1	5.50 ±0.5	8.0 ±0.1	4.00 ±0.1	2.00 ±0.05	0.292 ±0.02

SOT-223 Reel



UNIT:mm

REEL SIZE	M	N	W	W1	H	K	S	G	R	V
φ 330 ± 0.5	---	φ 97.0 ± 1.0	2.2	13.0 + 1.5	φ 13.0 + 0.5 - 0.2	10.6	2.0 ±0.5	---	---	---

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