

PRODUCT CHARACTERISTICS

VDSS	20V
$R_{DS(on)}$ Typ(@ $V_{GS}=4.5V$)	14m Ω
$R_{DS(on)}$ Typ(@ $V_{GS}=2.5V$)	16m Ω
$R_{DS(on)}$ Typ(@ $V_{GS}=1.8V$)	20m Ω
ID	6.8A

APPLICATION

Battery switch
DC/DC converter

FEATURE

High power and current handling capability
Lead free product is acquired
Surface mount package

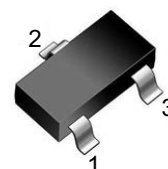
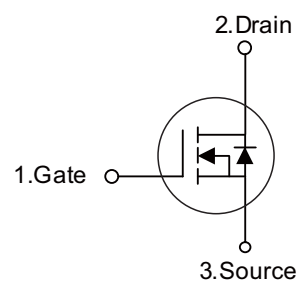
ORDER INFORMATION

Order codes		Package	Packing
Halogen-Free	Halogen		
N/A	MOT2312B2	SOT-23	3000pieces/Reel

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

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V _{DS}	20	V
Gate-Source Voltage	V _{GS}	±12	V
Drain Current-Continuous	I _D	6.8	A
Drain Current-Pulsed	I _{DM}	27	A
Maximum Power Dissipation	P _D	1.25	W
Operating Junction and Storage Temperature Range	T _J , T _{STG}	-55 To 150	°C

Symbol



■ ELECTRICAL CHARACTERISTICS ($T_C=25^{\circ}\text{C}$, unless otherwise specified)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	20	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=20V, V_{GS}=0V$	-	-	1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 12V, V_{DS}=0V$	-	-	± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.5	-	1.2	V
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS}=4.5V, I_D=4A$	-	14	19	m Ω
		$V_{GS}=2.5V, I_D=3A$	-	16	21	m Ω
		$V_{GS}=1.8V, I_D=2A$	-	20	28	m Ω
Forward Transconductance	g_{FS}	$V_{DS}=5V, I_D=3A$	3	-	-	S
Dynamic characteristics						
Input Capacitance	C_{iss}	$V_{DS}=10V, V_{GS}=0V,$ $F=1.0MHz$	-	712	-	PF
Output Capacitance	C_{oss}		-	116	-	PF
Reverse Transfer Capacitance	C_{rss}		-	103	-	PF
Switching characteristics						
Turn-on Delay Time	$t_{d(on)}$	$V_{DD}=10V, I_D=3A$ $V_{GS}=4.5V, R_{GEN}=3\Omega$	-	5	-	nS
Turn-on Rise Time	t_r		-	16	-	nS
Turn-Off Delay Time	$t_{d(off)}$		-	23	-	nS
Turn-Off Fall Time	t_f	$V_{DS}=10V, I_D=3A,$ $V_{GS}=4.5V$	-	7	-	nS
Total Gate Charge	Q_g		-	9	-	nC
Gate-Source Charge	Q_{gs}		-	1.5	-	nC
Gate-Drain Charge	Q_{gd}		-	2.5	-	nC
Dain-source diodecharacteristics						
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=1A$	-	-	1.2	V
Diode Forward Current	I_S		-	-	6.8	A

■ TYPICAL CHARACTERISTICS

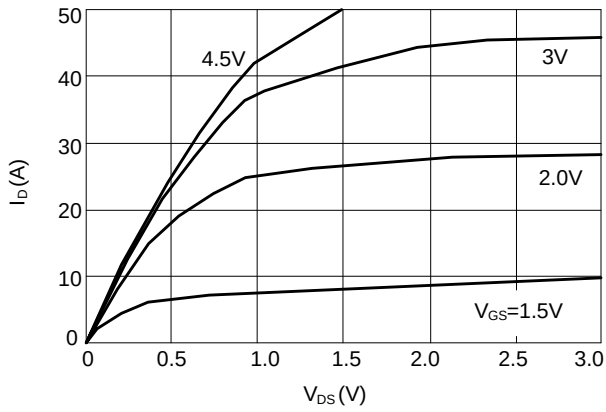


Figure 1: Output characteristics

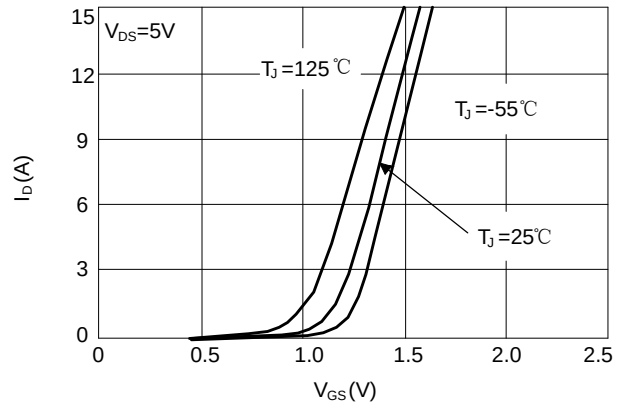


Figure 2: Typical transfer characteristics

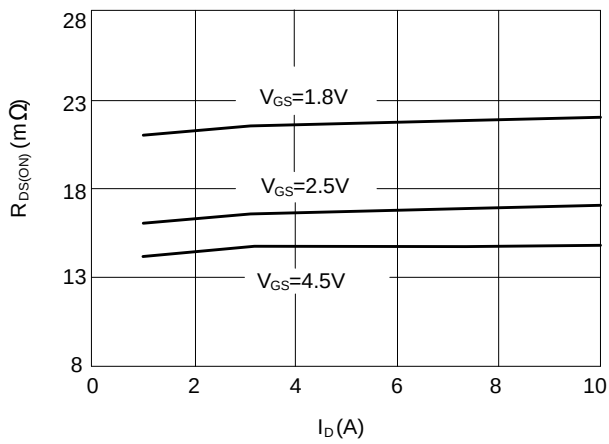


Figure 3: On-resistance vs. drain current

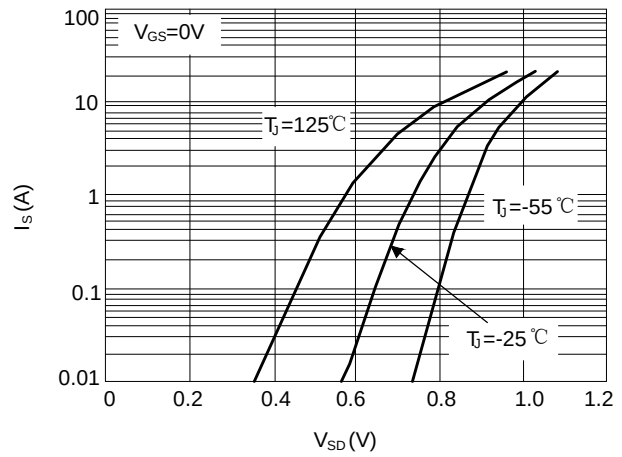


Figure 4: Body diode characteristics

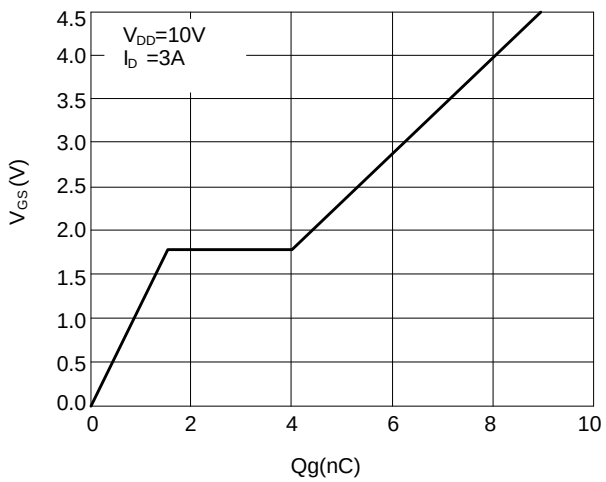


Figure 5: Gate charge characteristics

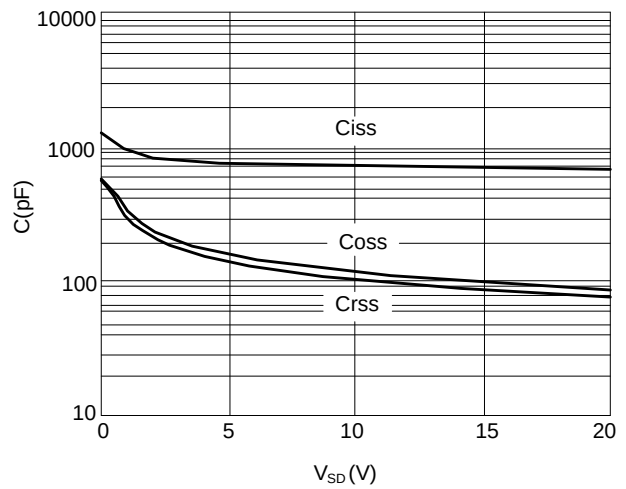


Figure 6: Capacitance characteristics

■ TYPICAL CHARACTERISTICS(Cont.)

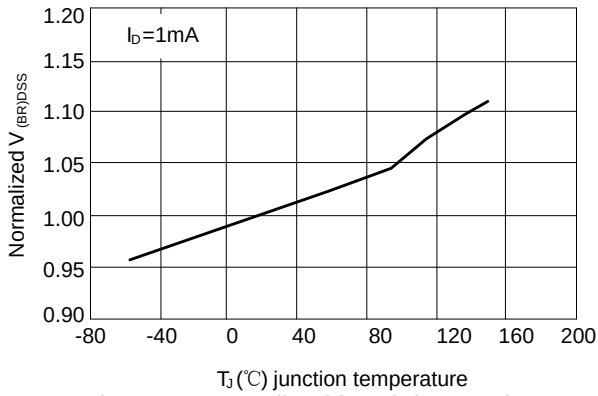


Figure 7: Normalized breakdown voltage vs. junction temperature

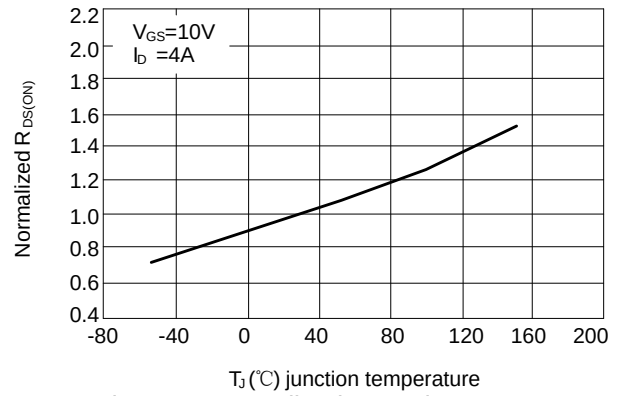


Figure 8: Normalized on resistance vs. junction temperature

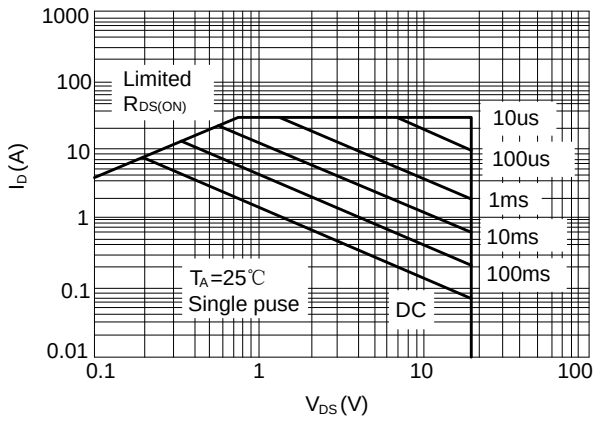


Figure 9: Maximum safe operating area

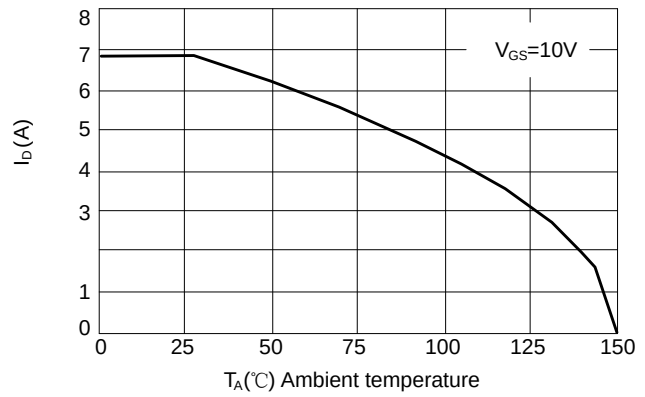
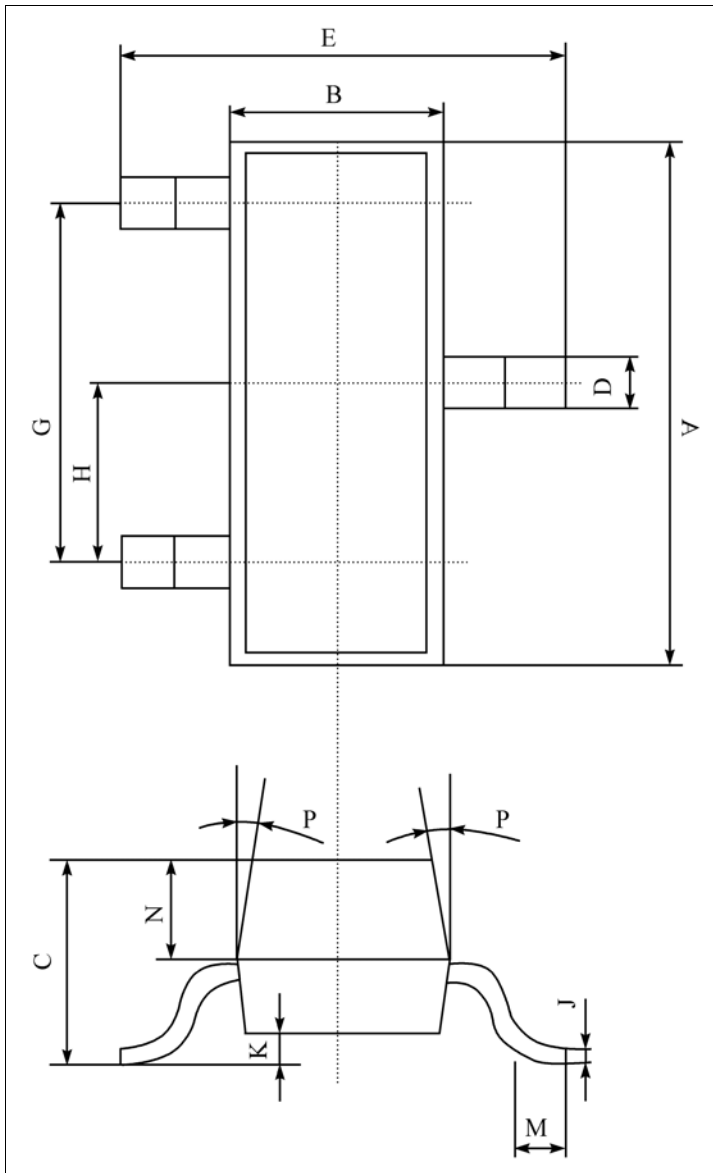


Figure 10: Maximum continuous drain current vs. junction temperature

■ SOT-23-3L PACKAGE OUTLINE DIMENSIONS

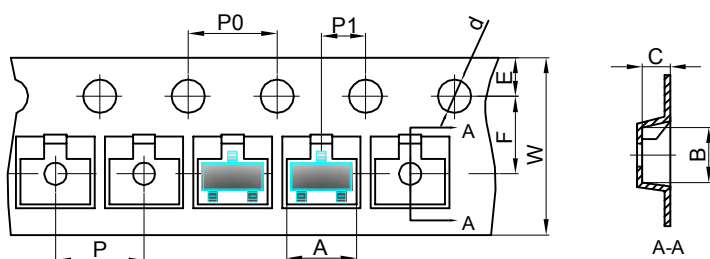


单位 (UNIT) : mm

序号	数值及公差
A	2.90±0.10
B	1.30±0.10
C	1.00±0.10
D	0.40±0.10
E	2.40±0.20
G	1.90±0.10
H	0.95±0.05
J	0.13±0.05
K	0.00-0.10
M	≥0.20
N	0.60±0.10
P	7±2°
Packing SOT-23 包装规格 SMD片式表面贴封装 包装方式: 载带卷盘包装 Tape & Reel, 3Kpcs/Reel 每卷数量3000只 (3Kpcs/Reel) 每盒数量45000只 (45Kpcs/BOX) 每箱数量180000只 (180Kpcs/Cartons)	

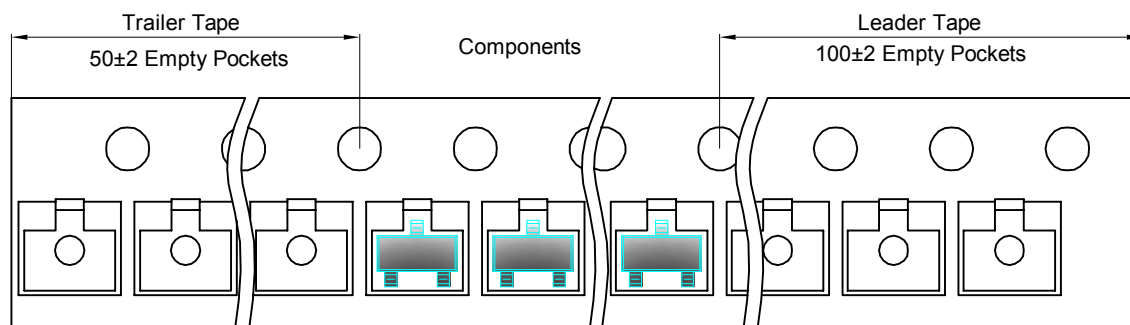
SOT-23 Tape and reel

SOT-23 Embossed Carrier Tape

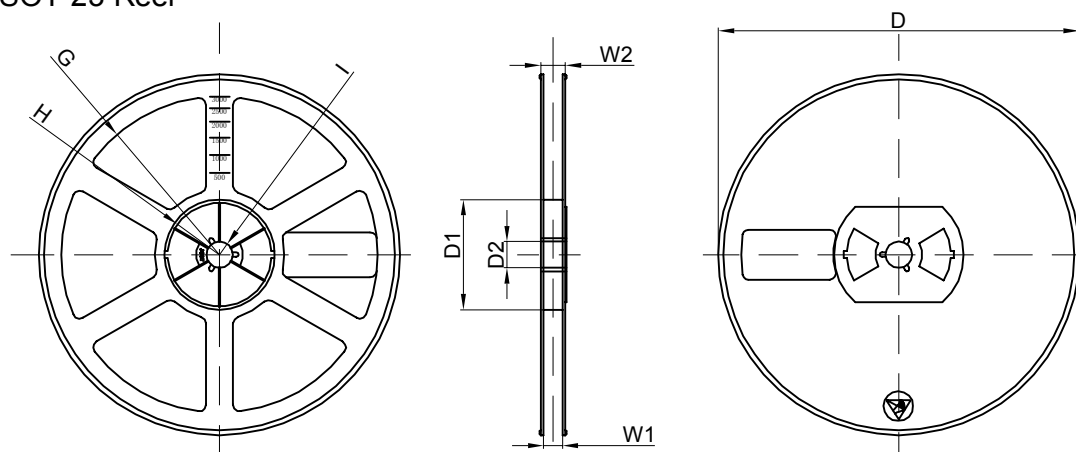


Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

SOT-23 Tape Leader and Trailer



SOT-23 Reel



Dimensions are in millimeter								
Reel Option	D	D1	D2	G	H	I	W1	W2
7"Dia	Ø178.00	54.40	13.00	R78.00	R25.60	R6.50	9.50	12.30

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
3000 pcs	7 inch	45,000 pcs	192×192×193	180,000 pcs	404×404×214	