

PRODUCT CHARACTERISTICS

V_{DSS}	100V
$R_{DS(ON)}$ Typ(@ $V_{GS}=10V$)	110m Ω
$R_{DS(ON)}$ Typ(@ $V_{GS}=4.5V$)	140m Ω
I_D	5A

APPLICATIONS

- * High efficiency switch mode power supplies
- * Electronic lamp ballasts based on half bridge
- * LED power supplies

FEATURE

- * High Switching Speed
- * Improved dv/dt capability

ORDER INFORMATION

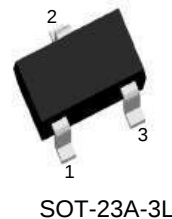
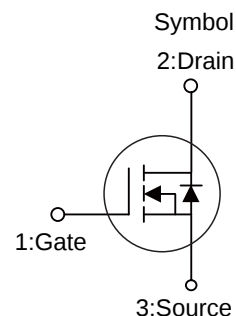
Order Codes		Package	Packing
Halogen-Free	Halogen		
N/A	MOT5N10A3	SOT-23A-3L	3000 pieces/Reel

ABSOLUTE MAXIMUM RATINGS($T_A=25^{\circ}C$, unless otherwise specified)

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DSS}	100	V
Gate-Source Voltage	V_{GSS}	± 20	V
Drain Current Continuous(@ $V_{GS}=10V, T_A=25^{\circ}C$)	I_D	5	A
Drain Current Pulsed	I_{DM}	20	A
Avalanche Energy *	E_{AS}	9	mJ
Power Dissipation	P_D	1	W
Junction Temperature	T_J	+150	$^{\circ}C$
Storage Temperature	T_{STG}	-55~ +150	$^{\circ}C$

THERMAL CHARACTERISTICS

Parameter	Symbol	Typ	Unit
Junction to Ambient	R_{thJA}	125	$^{\circ}C/W$



Note: * EAS condition: $T_J=25^{\circ}C, V_{DD}=30V, V_G=10V, L=0.5mH, R_g=25\Omega$

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Off characteristics						
Drain to Source Breakdown Voltage	V _{DSS}	V _{GS} =0V, I _D =250μA	100	-	-	V
Drain to Source Leakage Current	I _{DSS}	V _{DS} =100V, V _{GS} =0V	-	-	1	μA
Gate to Source Forward Leakage	I _{GSS(F)}	V _{DS} =0V, V _{GS} =+20V	-	-	100	nA
Gate to Source Reverse Leakage	I _{GSS(R)}	V _{DS} =0V, V _{GS} =-20V	-	-	-100	nA
On characteristics						
Drain to Source On-Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =3A	-	110	130	mΩ
		V _{GS} =4.5V, I _D =2A	-	140	170	mΩ
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =250μA	1	1.7	2.5	V
Dynamic characteristics						
Forward Transconductance	g _{fs}	V _{DS} =10V, I _D =1A	5	-	-	S
Input Capacitance	C _{iss}	V _{DS} =30V, V _{GS} =0V f=1.0MHz	-	149	-	pF
Output Capacitance	C _{oss}		-	66	-	pF
Reverse Transfer Capacitance	C _{rss}		-	4.1	-	pF
Resistive Switching Characteristics						
Turn-on Delay Time	t _{d(ON)}	I _D =5A, V _{DS} =50V R _G =3.3Ω, V _{GS} =10V	-	4	-	ns
Rise Time	t _r		-	16	-	ns
Turn-off Delay Time	t _{d(OFF)}		-	17	-	ns
Fall Time	t _f		-	20	-	ns
Total Gate Charge	Q _g	I _D =5 A, V _{DS} =50V V _{GS} =10V	-	19	-	nC
Gate to Source Charge	Q _{gs}		-	3.2	-	nC
Gate to Drain("Miller") Charge	Q _{gd}		-	3.4	-	nC
Source-Drain Diode Characteristics						
Continuous Source Current(Body Diode)	I _S		-	-	5	A
Maximum Pulsed Current(Body Diode)	I _{SM}		-	-	20	A
Diode Forward Voltage	V _{SD}	I _{SD} =1A, V _{GS} =0V	-	0.82	1.2	V
Reverse Recovery Time	t _{rr}	I _{SD} =5 A, T _J =25℃	-	42	-	ns
Reverse Recovery Charge	Q _{rr}	di /dt=100A/μs	-	24	-	nC

TYPICAL CHARACTERISTICS

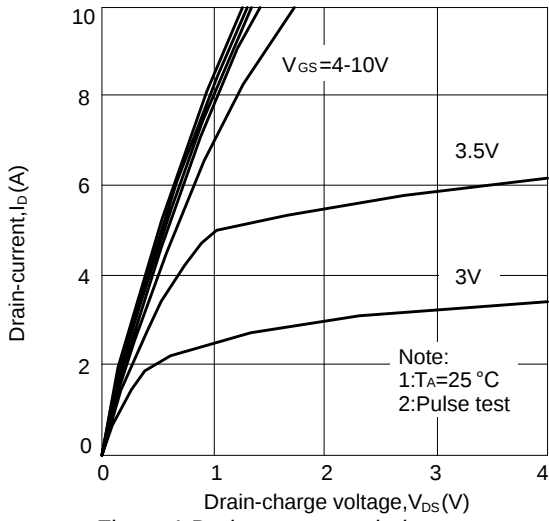


Figure 1: Drain current vs. drain-source voltage

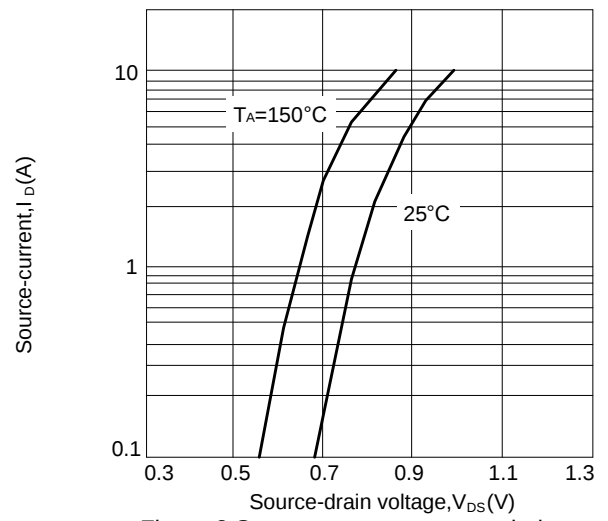


Figure 2: Source current vs. source-drain

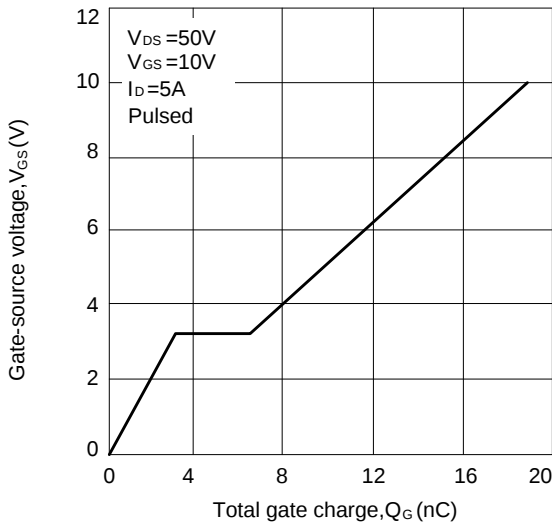


Figure 3: Gate charge characteristics

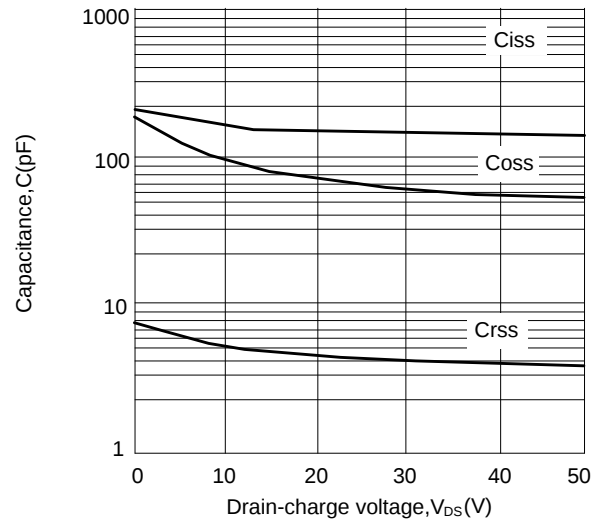


Figure 4: Capacitance characteristics

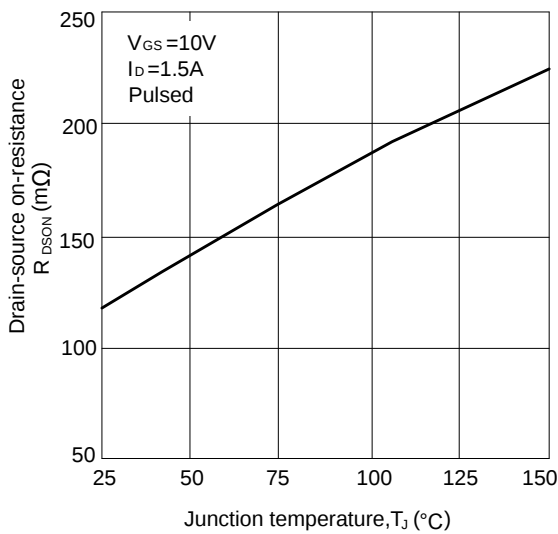


Figure 5: Drain-source on-resistance vs. junction temperature

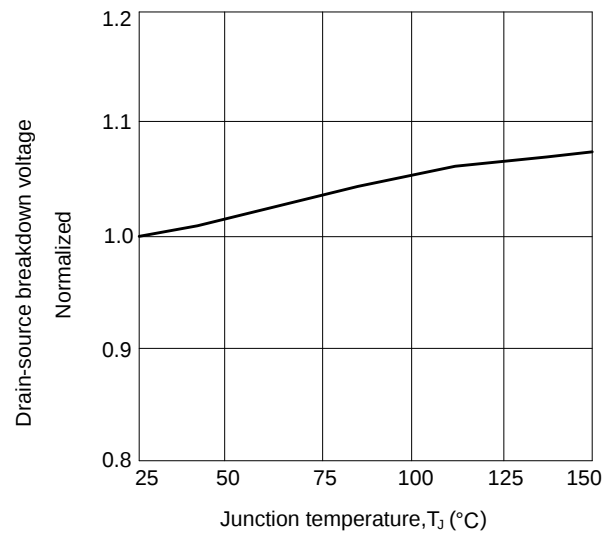


Figure 6: Breakdown voltage vs. junction temperature

■ TYPICAL CHARACTERISTICS(Cont.)

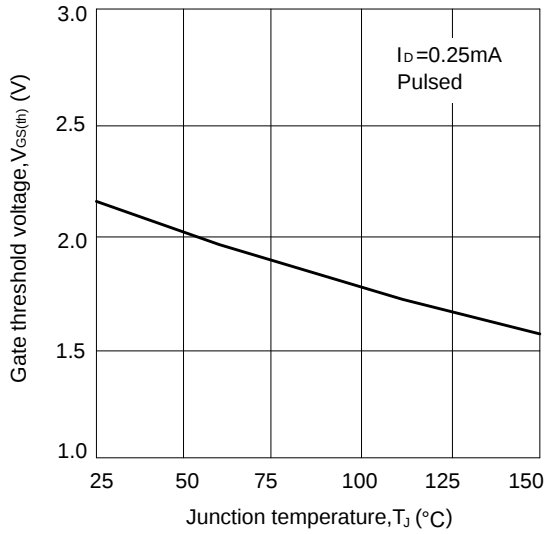


Figure 7: Gate threshold voltage vs junction temperature

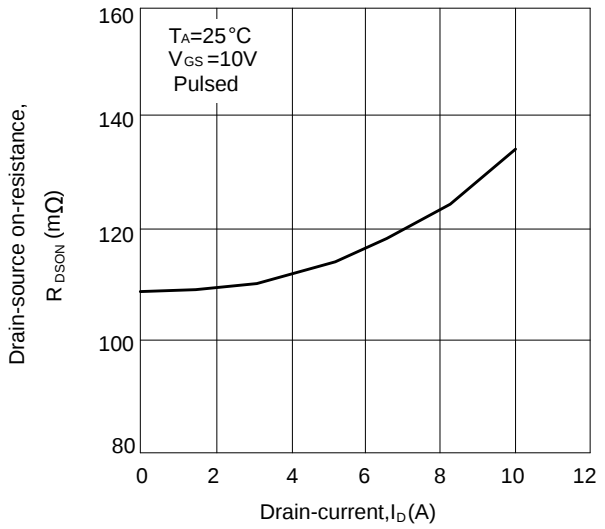


Figure 8: Drain-source on-resistance vs. drain-current

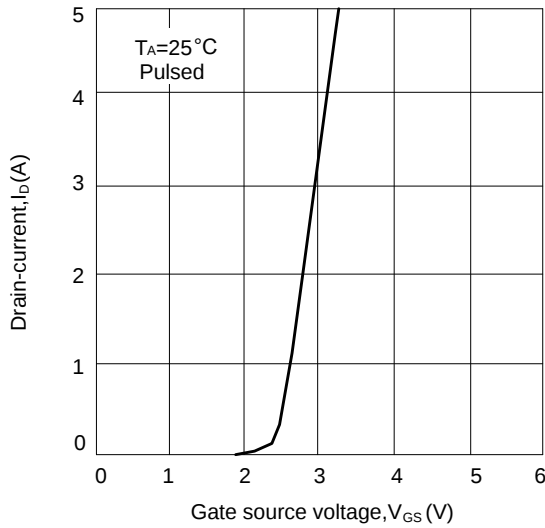


Figure 9: Drain-current vs. gate-source

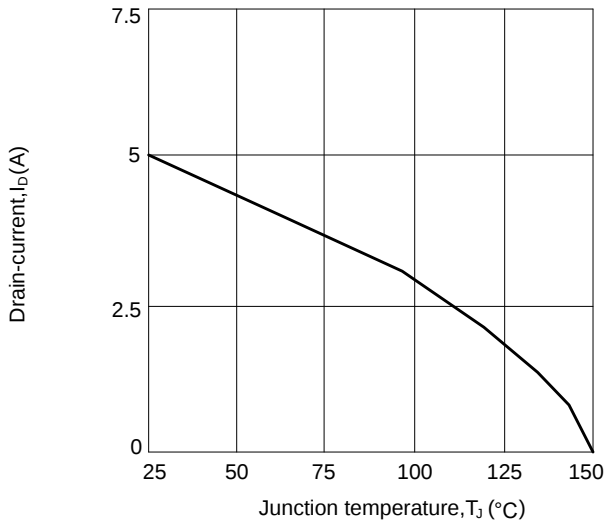


Figure 10: Drain current vs. junction temperature

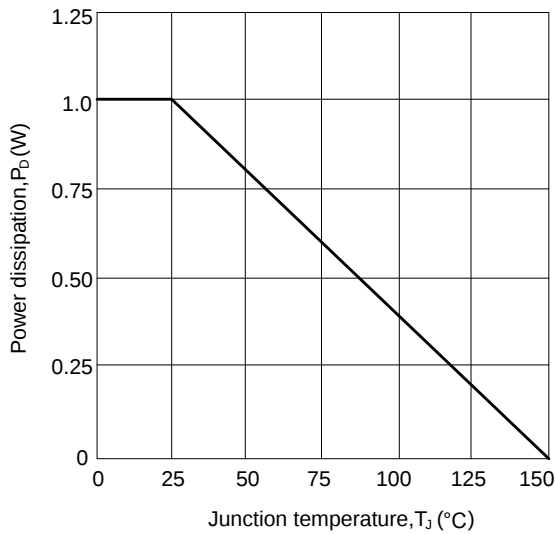


Figure 11: Power dissipation vs. junction temperature

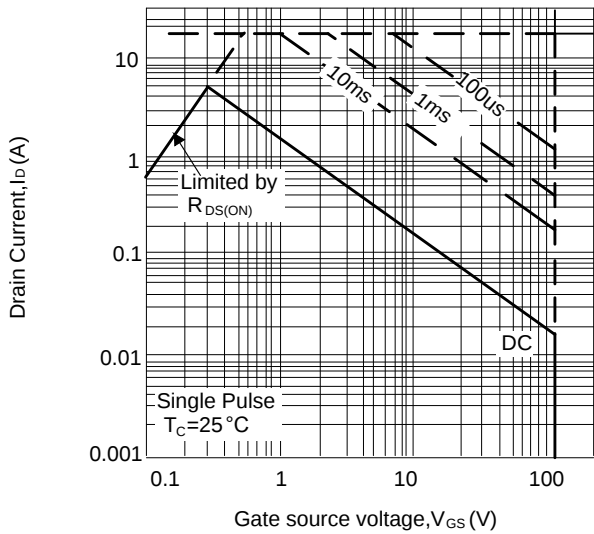
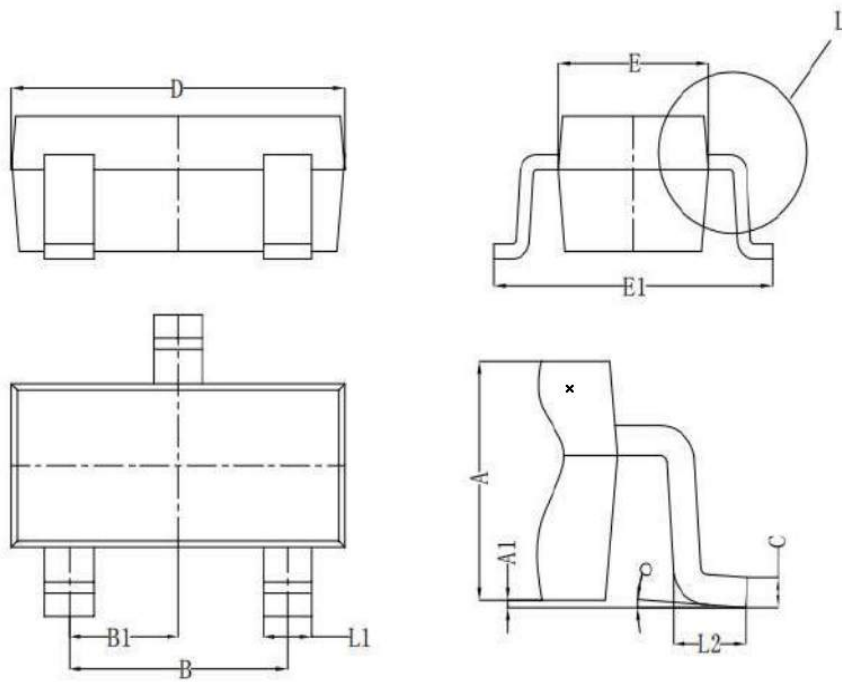


Figure 12: Safe operating area

■ SOT-23A-3L PACKAGE OUTLINE DIMENSIONS



Symbol	Dim in mm		
	Min	Nor	
A	1.050	1.100	1.150
A1	0.000	0.050	0.100
L1	0.300	0.400	0.500
C	0.100	0.150	0.200
D	2.820	2.920	3.020
E	1.500	1.600	1.700
E1	2.650	2.800	2.950
B	1.800	1.900	2.000
B1	0.950 TYP		
L2	0.300	0.450	0.600
o	0°	4°	8°