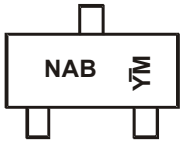
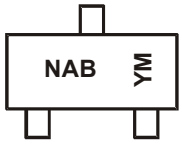
Marking Information



Chengdu A/T Site



Shanghai A/T Site

NAB = Product Type Marking Code
YM = Date Code Marking for SAT (Shanghai Assembly/ Test site)
$\overline{Y}$M = Date Code Marking for CAT (Chengdu Assembly/ Test site)
Y or $\overline{Y}$ = Year (ex: I = 2021)
M = Month (ex: 9 = September)

Date Code Key

Year	2008	……	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Code	V	……	I	J	K	L	M	N	O	P	R	S

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

Maximum Ratings (@ T_A = +25°C, unless otherwise specified.)

Characteristic			Symbol	Value	Units
Drain-Source Voltage			V_{DSS}	20	V
Gate-Source Voltage			V_{GSS}	±8	V
Drain Current (Note 5) V_{GS} = 4.5V	Steady State	T_A = +25°C T_A = +85°C	I_D	630 450	mA
Drain Current (Note 5) V_{GS} = 1.8V	Steady State	T_A = +25°C T_A = +85°C	I_D	410 300	mA
Pulsed Drain Current (Note 6)			I_{DM}	1.5	A

Thermal Characteristics (@ T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Units
Total Power Dissipation (Note 5)	P_D	350	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	357	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +150	°C

Electrical Characteristics (@ T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 7)						
Drain-Source Breakdown Voltage	BV_{DSS}	20	—	—	V	V_{GS} = 0V, I_D = 10μA
Zero Gate Voltage Drain Current	I_{DSS}	—	—	1	μA	V_{DS} = 16V, V_{GS} = 0V
Gate-Source Leakage	I_{GSS}	—	—	±1	μA	V_{GS} = ±4.5V, V_{DS} = 0V
ON CHARACTERISTICS (Note 7)						
Gate Threshold Voltage	$V_{GS(th)}$	0.5	—	1.0	V	V_{DS} = V_{GS}, I_D = 250μA
Static Drain-Source On-Resistance	$R_{DS(on)}$	—	0.4 0.5 0.7	0.55 0.70 0.9	Ω	V_{GS} = 4.5V, I_D = 540mA V_{GS} = 2.5V, I_D = 500mA V_{GS} = 1.8V, I_D = 350mA
Forward Transfer Admittance	$\|Y_{fs}\|$	200	—	—	ms	V_{DS} =10V, I_D = 0.2A
Source Current	I_S	—	—	0.5	A	—
Diode Forward Voltage (Note 7)	V_{SD}	0.6	—	1	V	V_{GS} = 0V, I_S = 500mA
DYNAMIC CHARACTERISTICS						
Input Capacitance	C_{iss}	—	—	150	pF	V_{DS} = 16V, V_{GS} = 0V f = 1.0MHz
Output Capacitance	C_{oss}	—	—	25	pF	
Reverse Transfer Capacitance	C_{rss}	—	—	20	pF	
Gate Resistance	R_g	—	292	—	Ω	V_{DS} = 0V, V_{GS} = 0V, f = 1.0MHz
Total Gate Charge	Q_g	—	0.9	—	nC	V_{DS} = 15V, V_{GS} = 4.5V, I_D = 0.5A
Gate-Source Charge	Q_{gs}	—	0.2	—		
Gate-Drain Charge	Q_{gd}	—	0.2	—		
Turn-On Delay Time	$t_{D(on)}$	—	5.7	—	ns	V_{GS} = 8V, V_{DS} = 15V, R_G = 6Ω, R_L = 30Ω
Turn-On Rise Time	t_r	—	8.4	—		
Turn-Off Delay Time	$t_{D(off)}$	—	59.4	—		
Turn-Off Fall Time	t_f	—	37.6	—		
Body Diode Reverse Recovery Time	t_{rr}	—	5.5	—	ns	I_S = 0.5A, dI/dt = -100A/μs
Body Diode Reverse Recovery Charge	Q_{rr}	—	0.85	—	nC	I_S = 0.5A, dI/dt = -100A/μs

Notes:
5. Device mounted on FR-4 PCB, with minimum recommended pad layout, single sided.
6. Pulse width ≤10μS, Duty Cycle ≤1%.
7. Short duration pulse test used to minimize self-heating effect.

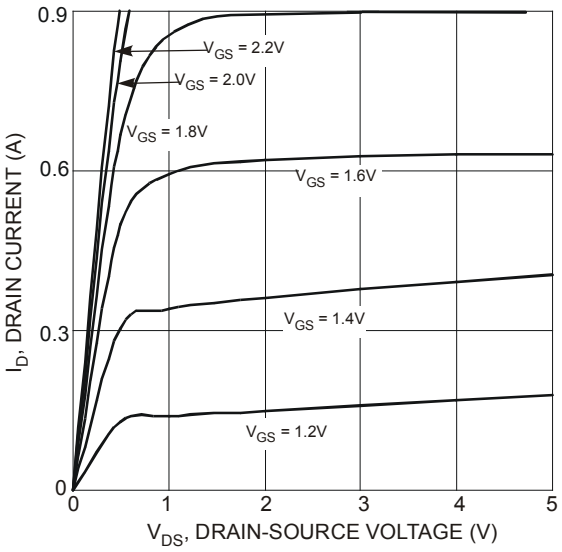


Figure 1 Typical Output Characteristics

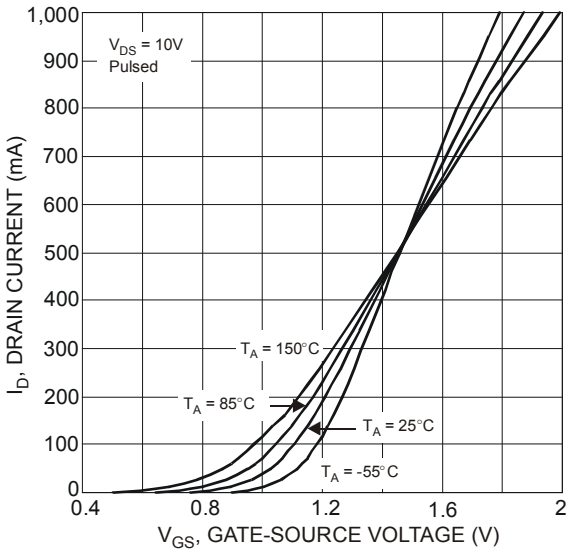


Figure 2 Reverse Drain Current vs. Source-Drain Voltage

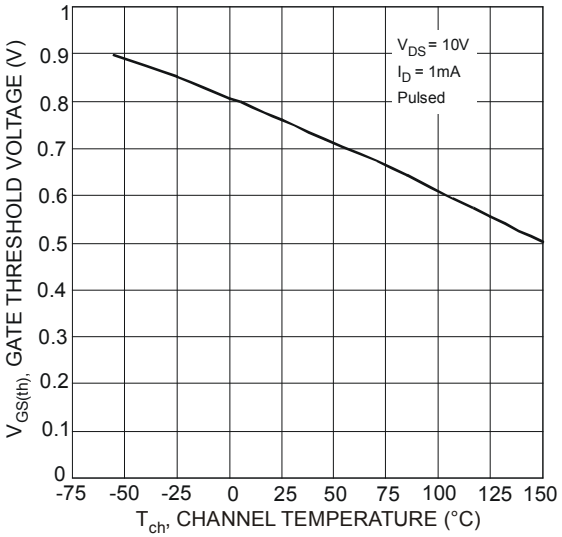


Figure 3 Gate Threshold Voltage vs. Channel Temperature

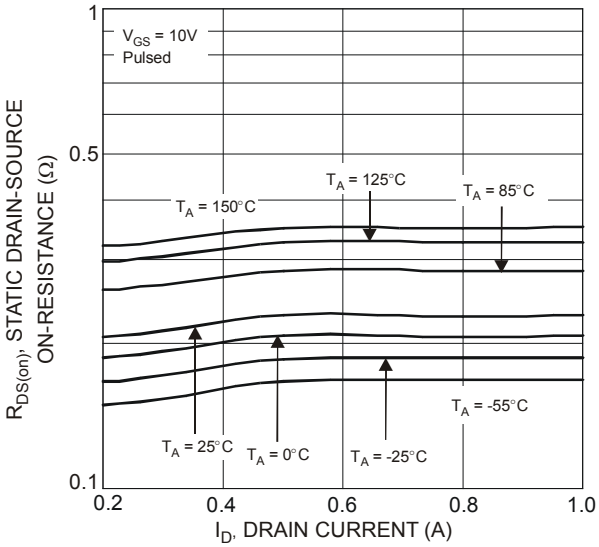


Figure 4 Static Drain-Source On-Resistance vs. Drain Current

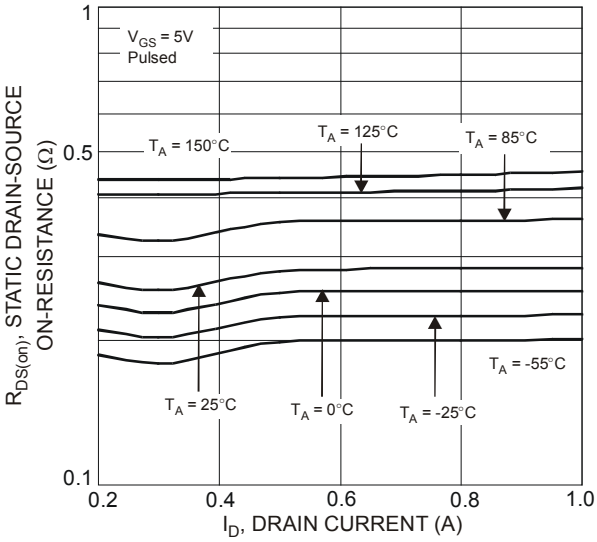


Figure 5 Static Drain-Source On-Resistance vs. Drain Current

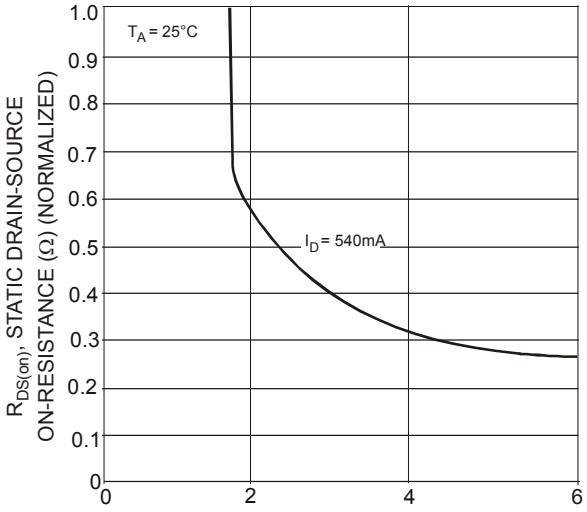


Figure 6 Static Drain-Source, On-Resistance vs. Gate-Source Voltage

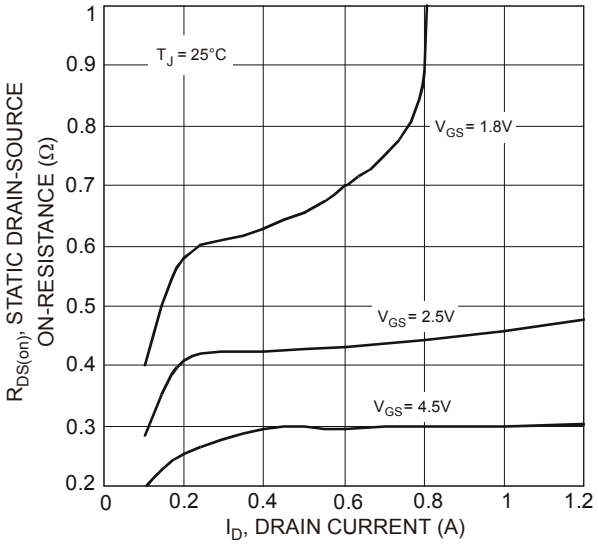


Figure 7 On-Resistance vs. Drain Current and Gate Voltage

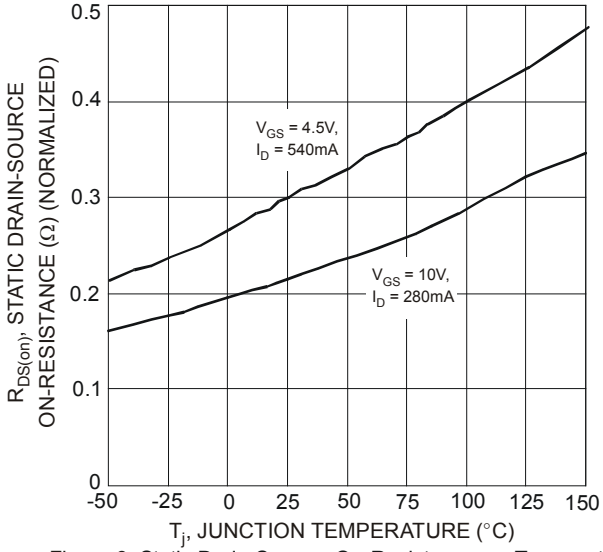


Figure 8 Static Drain-Source, On-Resistance vs. Temperature

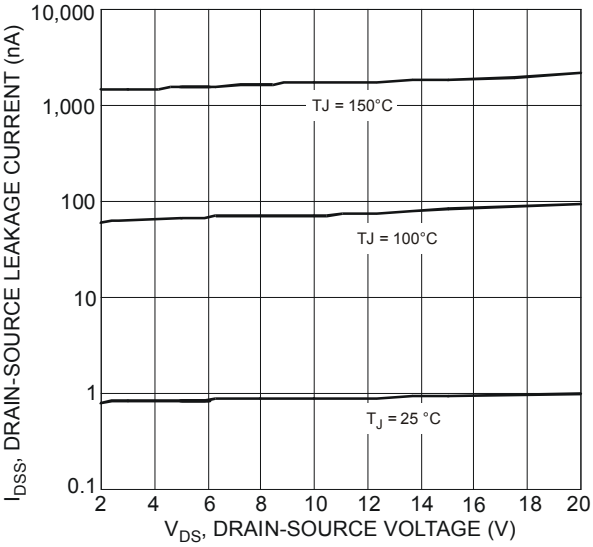


Figure 9 Drain Source Leakage Current vs. Voltage

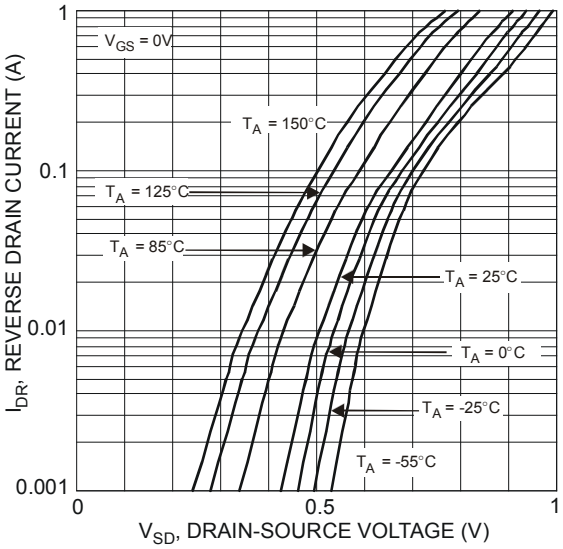


Figure 10 Reverse Drain Current vs. Source-Drain Voltage

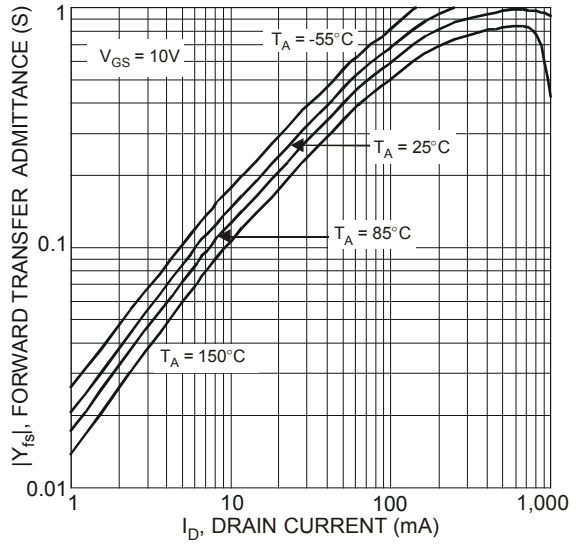


Figure 11 Forward Transfer Admittance vs. Drain Current

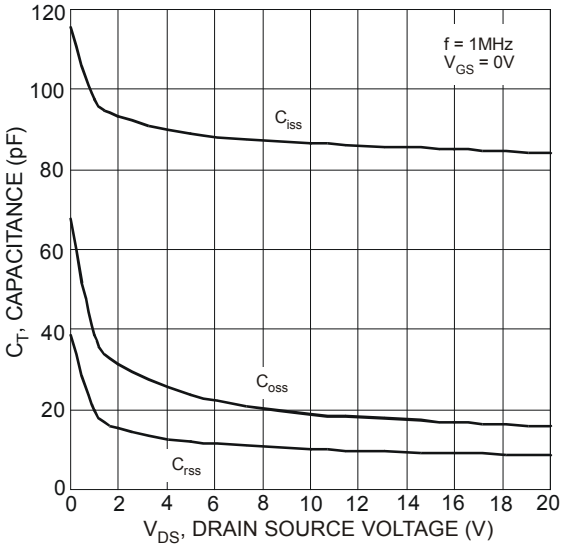


Figure 12 Capacitance Variation

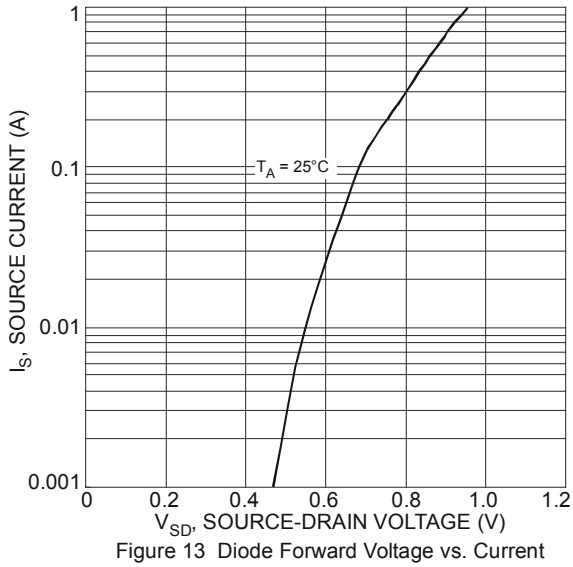


Figure 13 Diode Forward Voltage vs. Current

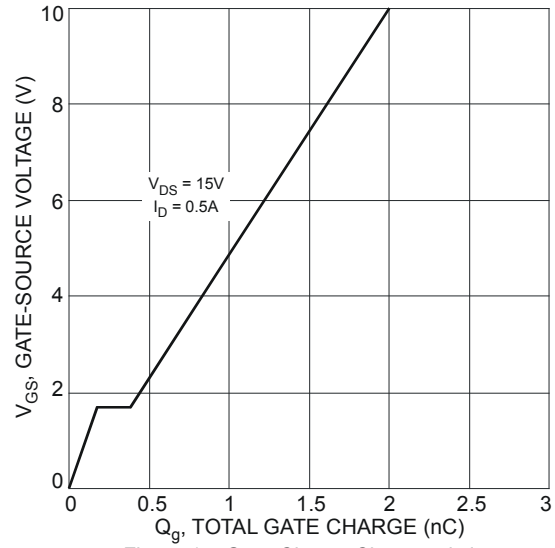
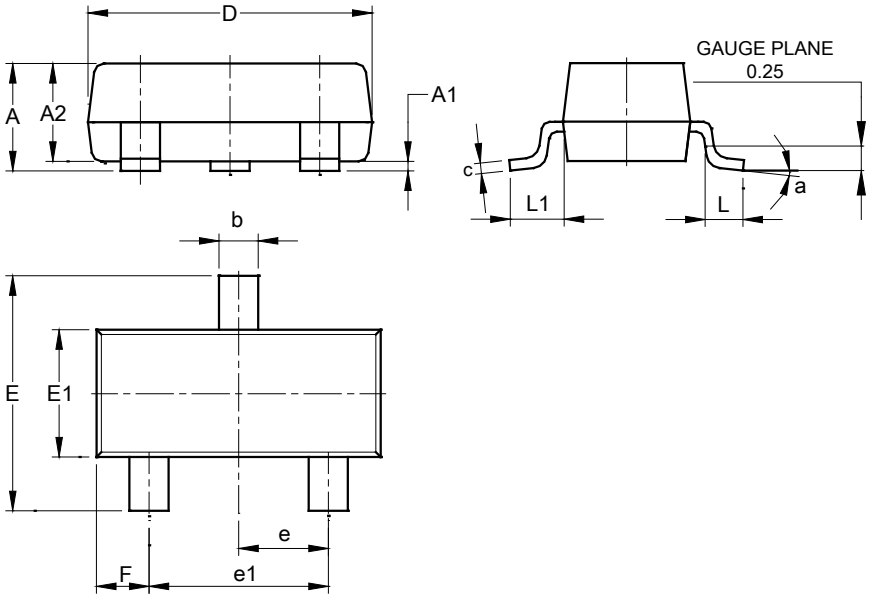


Figure 14 Gate-Charge Characteristics

Package Outline Dimensions

Please see http://www.diodes.com/package-outlines.html for the latest version.

SOT23 (Standard)

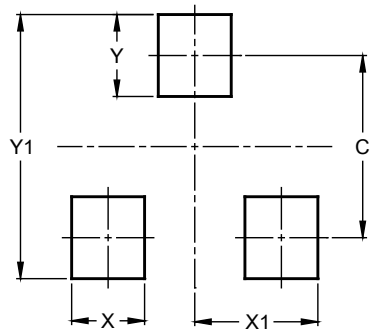


SOT23 (Standard)			
Dim	**Min**	**Max**	**Typ**
A	0.90	1.15	1.025
A1	0.00	0.10	0.05
A2	0.85	1.10	0.975
b	0.30	0.51	0.40
c	0.080	0.202	0.11
D	2.80	3.00	2.90
E	2.25	2.55	2.40
E1	1.20	1.40	1.30
e	0.89	1.03	0.915
e1	1.78	2.05	1.83
F	0.40	0.60	0.535
L1	0.45	0.61	0.55
L	0.25	0.55	0.40
a	0°	8°	--
All Dimensions in mm			

Suggested Pad Layout

Please see http://www.diodes.com/package-outlines.html for the latest version.

SOT23 (Standard)



Dimensions	Value (in mm)
C	2.0
X	0.8
X1	1.35
Y	0.9
Y1	2.9

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