



Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
20V	250mΩ@4.5V	0.75A
	350mΩ@2.5V	
-20V	430mΩ@-4.5V	-0.66A
	620mΩ@-2.5V	

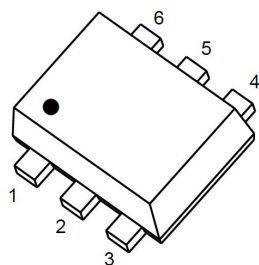
Feature

- Trench Technology
- Supper high density cell design for extremely low $R_{ds(on)}$
- Exceptional ON resistance and maximum DC current capability
- ESD protected Gate HBM 2KV

Application

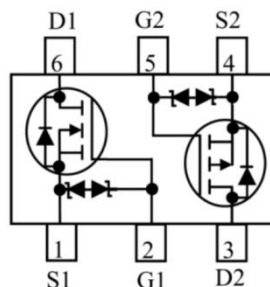
- Driver: Relays, Solenoids, Lamps, Hammers
- Power supply converters circuit
- Load/Power Switching for potable device

Package



SOT-563

Circuit diagram



Marking



24K =Device Code

**Absolute maximum ratings (Ta=25°C unless otherwise noted)**

Parameter	Symbol	Value	Unit
Power Dissipation	P_D	0.15	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	833	°C/W
Junction Temperature	T_J	150	°C
Storage Temperature	T_{STG}	-55~ +150	°C

Maximum Ratings - N-Channel Q1 (Ta=25°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	0.75	A

Maximum Ratings - P-Channel Q2 (Ta=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	±10	V
Continuous Drain Current	I_D	-0.66	A

Electrical characteristics - N-Channel Q1 (Ta=25 °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 _{GS} =±10V, V _{DS} = 0V			±10	uA
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		0.25	0.38	Ω
		V _{GS} =2.5V, I _D = 0.2A		0.35	0.45	
		V _{GS} =1.8V, I _D = 0.1A		0.4		
Dynamic characteristics						
Input Capacitance	C _{iss}	V _{DS} =16V,V _{GS} =0V, f=1MHz		79	120	pF
Output Capacitance	C _{oss}			13	20	
Reverse Transfer Capacitance	C _{rss}			9	15	
Switching Characteristics						
Turn-on delay time	t _{d(on)}	V _{GS} =4.5V,V _{DS} =10V, I _D =500mA,R _{GEN} =10Ω		6.7		ns
Turn-on rise time	t _r			4.8		



Turn-off delay time	$t_{d(off)}$		17.3		
Turn-off fall time	t_f		7.4		
Source-Drain Diode characteristics					
Body Diode Voltage	V_{SD}	$I_S=0.5A, V_{GS}=0V$	0.7	1.3	V

Electrical characteristics - P-Channel Q2 ($T_A=25^\circ C$, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-20			V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = -16V, V_{GS} = 0V$			-1	μA
Gate-body leakage current	I_{GSS}	$V_{GS} = \pm 10V, V_{DS} = 0V$			± 10	μA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-0.35		-1.0	V
Drain-source on-resistance ¹⁾	$R_{DS(on)}$	$V_{GS} = -4.5V, I_D = -0.5A$		0.43	0.52	Ω
		$V_{GS} = -2.5V, I_D = -0.2A$		0.62	0.7	
		$V_{GS} = -1.8V, I_D = -0.1A$		0.95		
Dynamic characteristics ²⁾						
Input Capacitance	C_{iss}	$V_{DS} = -16V, V_{GS} = 0V, f = 1MHz$		113		pF
Output Capacitance	C_{oss}			15		
Reverse Transfer Capacitance	C_{rss}			9		
Turn-on delay time	$t_{d(on)}$	$V_{DS} = -10V, I_D = -200mA, V_{GS} = -4.5V, R_G = 10\Omega$		9		ns
Turn-on rise time	t_r			5.7		
Turn-off delay time	$t_{d(off)}$			32.6		
Turn-off fall time	t_f			20.3		
Source-Drain Diode characteristics						
Diode Forward voltage	V_{SD}	$V_{GS} = 0V, I_S = -0.5A$			-1.2	V

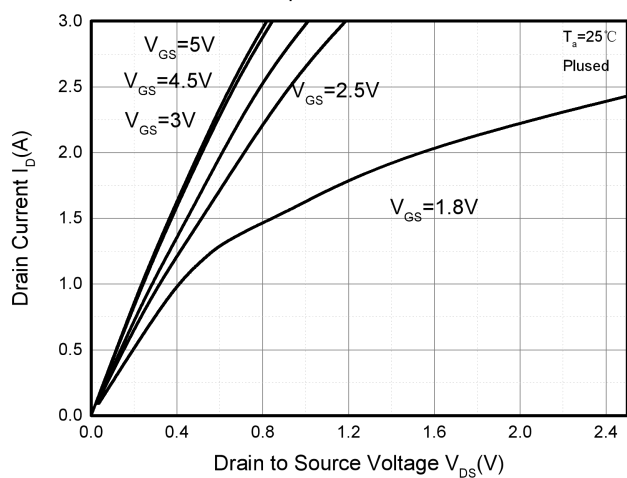
Notes:

1. Pulse Test: Pulse Width $< 300\mu s$, Duty Cycle $\leq 2\%$.
2. Guaranteed by design, not subject to production testing.

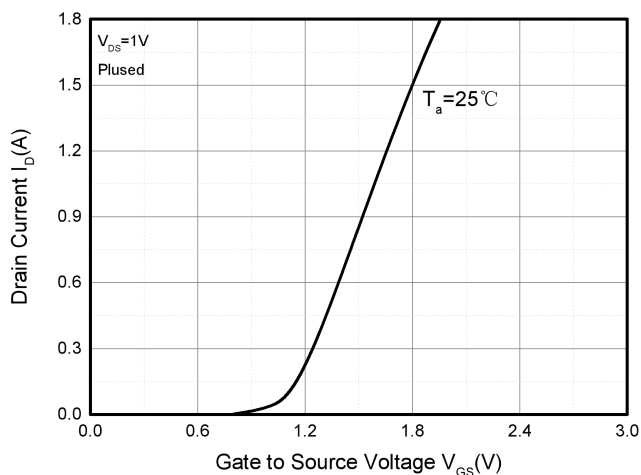


Typical Characteristics - N-Channel Q1

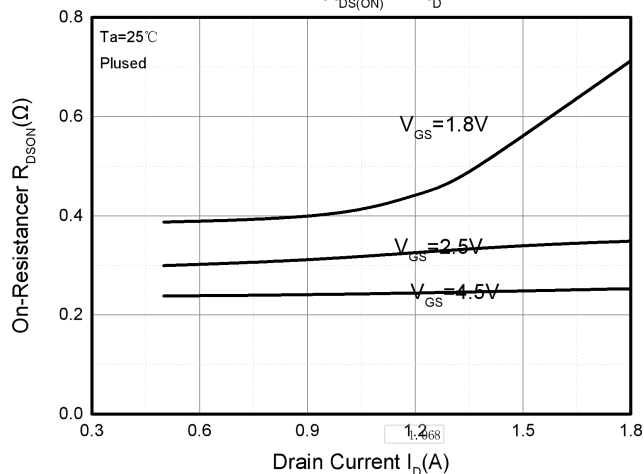
Output Characteristics



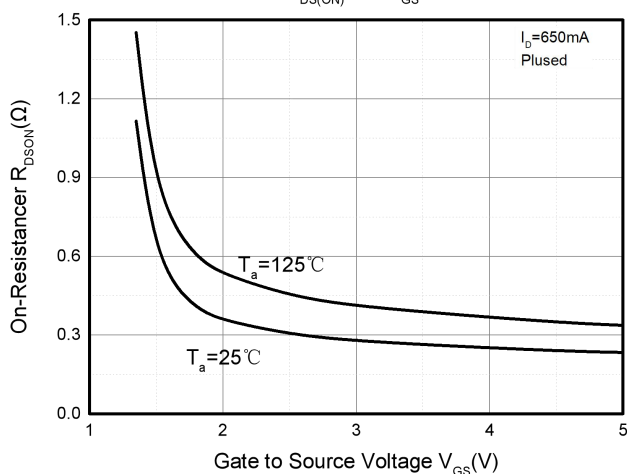
Transfer Characteristics



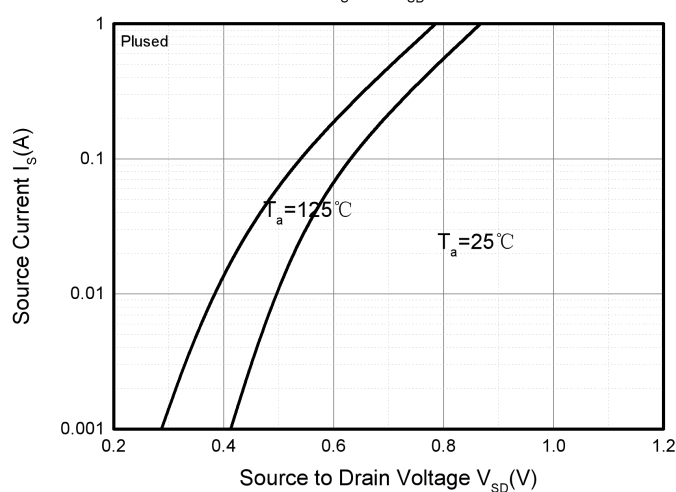
$R_{DS(ON)} - I_D$



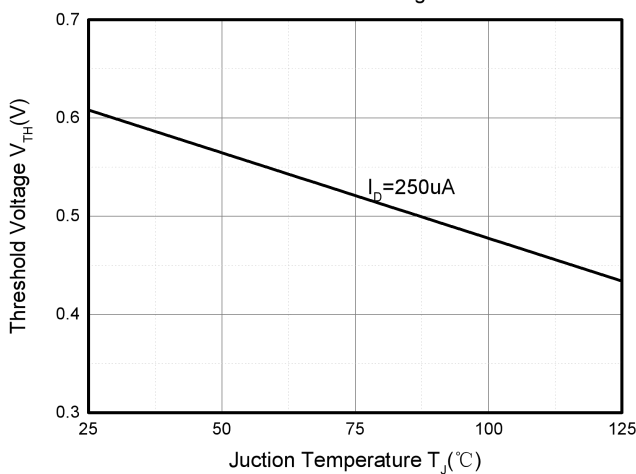
$R_{DS(ON)} - V_{GS}$



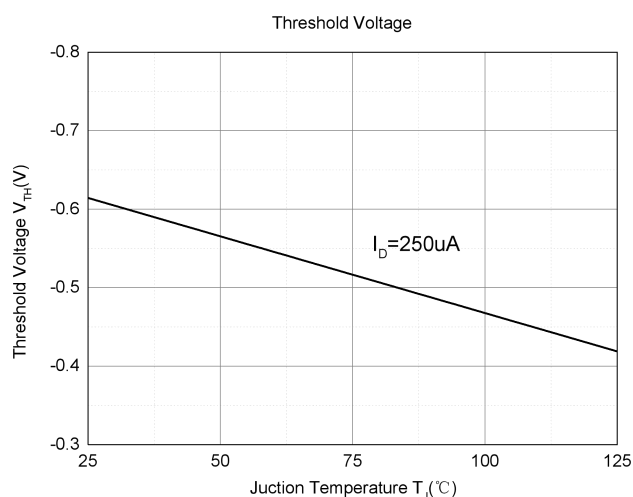
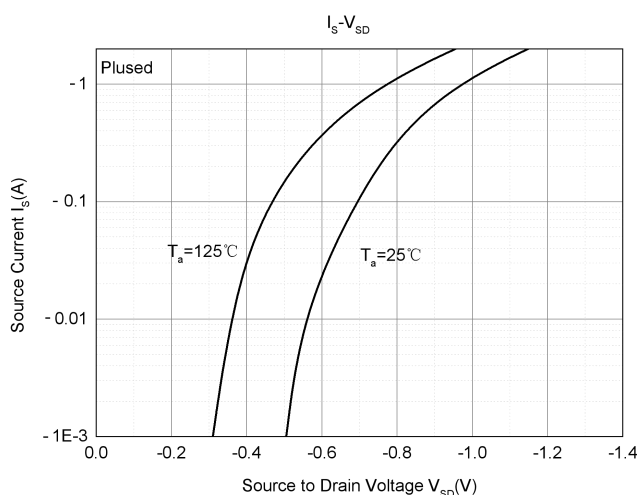
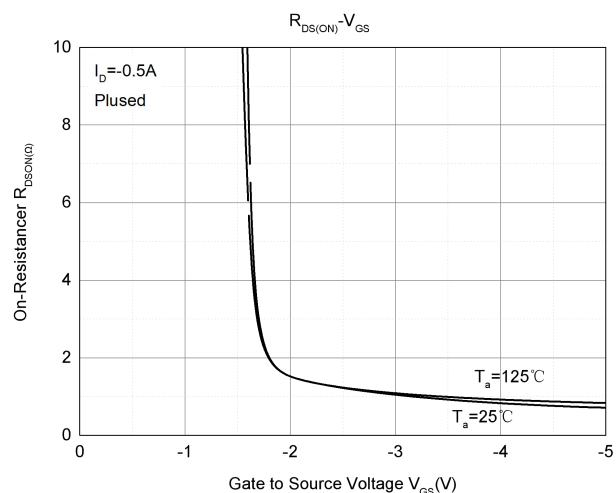
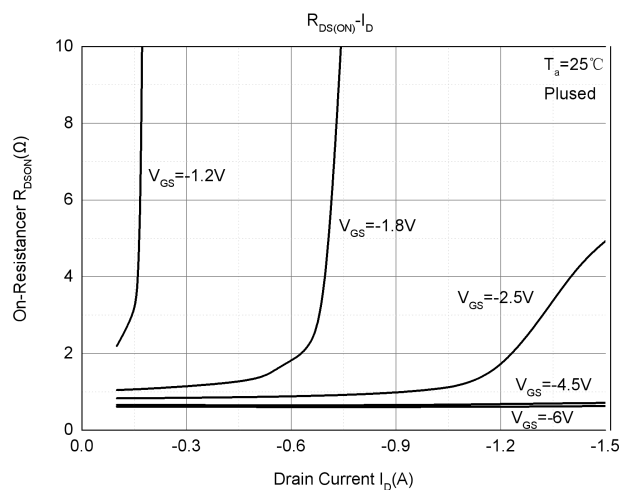
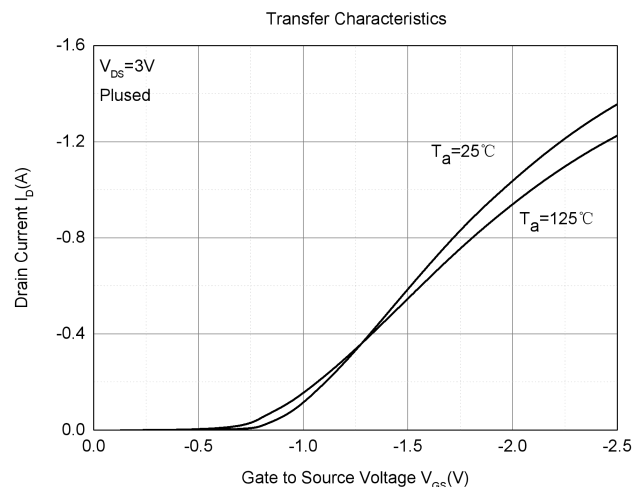
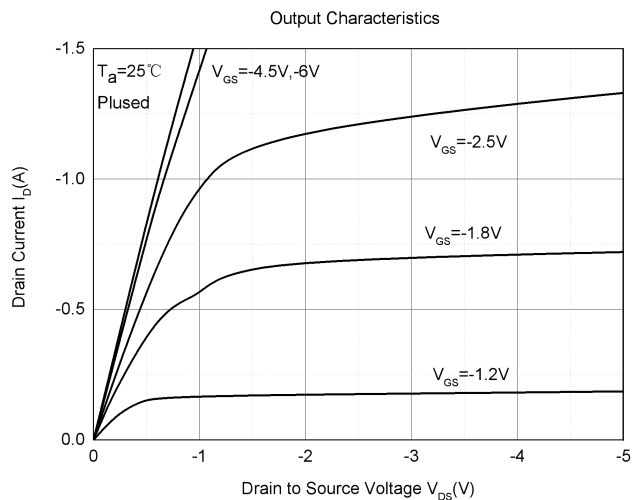
$I_S - V_{SD}$



Threshold Voltage

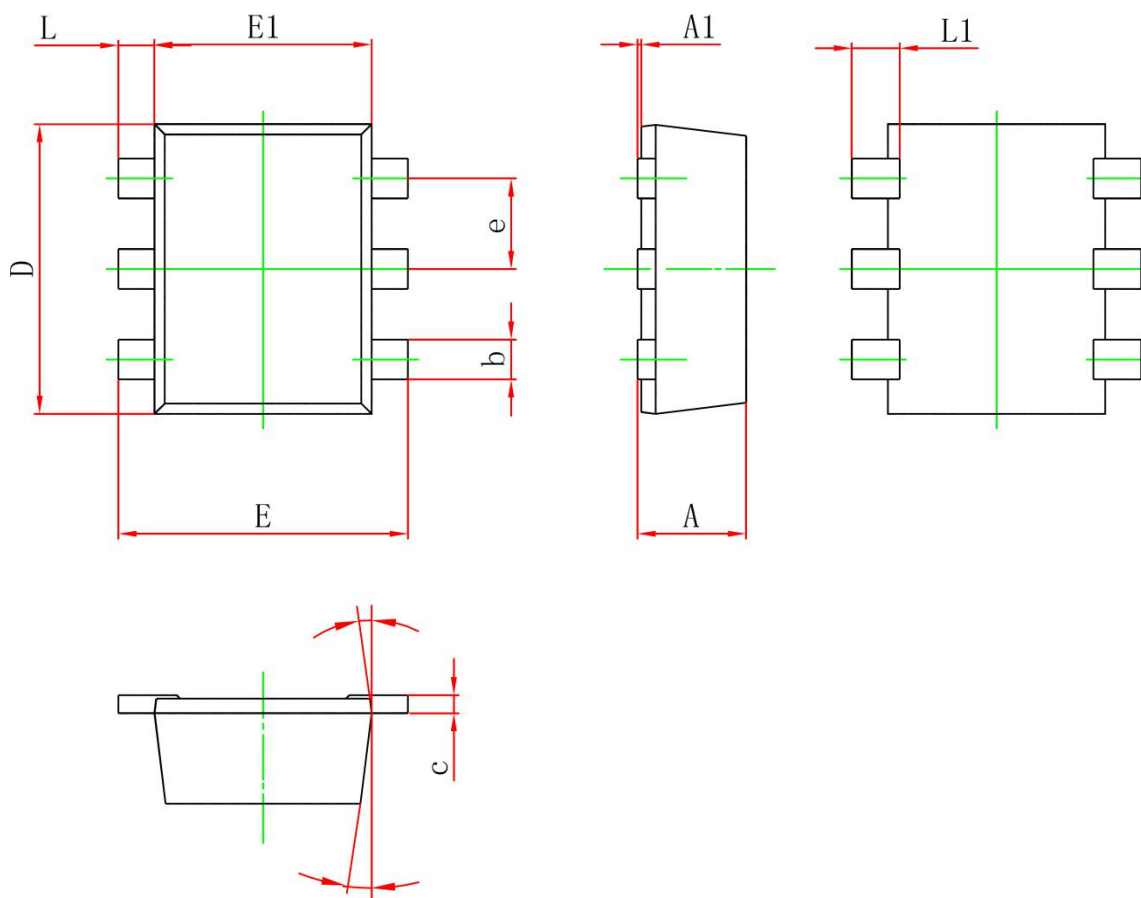


Typical Characteristics - P-Channel Q2





SOT-563 Package Information



Symbol	Dimensions In Millimeters	
	Min	Max
A	0.525	0.600
A1	0.000	0.050
e	0.450	0.550
c	0.090	0.160
D	1.500	1.700
b	0.170	0.270
E1	1.100	1.300
E	1.500	1.700
L	0.100	0.300
L1	0.200	0.400
θ	7°Ref.	

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [MOSFETs](#) category:

Click to view products by [Siliup](#) manufacturer:

Other Similar products are found below :

[MCH3443-TL-E](#) [MCH6422-TL-E](#) [NTNS3A92PZT5G](#) [IRFD120](#) [2SK2464-TL-E](#) [2SK3818-DL-E](#) [2SJ277-DL-E](#) [2SK2267\(Q\)](#) [MIC4420CM-TR](#) [IRFS350](#) [IPS70R2K0CEAKMA1](#) [AON6932A](#) [2SK2614\(TE16L1,Q\)](#) [DMN1017UCP3-7](#) [EFC2J004NUZTDG](#) [SCM040600](#) [NTE2384](#) [2N7000TA](#) [DMN2080UCB4-7](#) [DMN61D9UWQ-13](#) [US6M2GTR](#) [DMN31D5UDJ-7](#) [DMP22D4UFO-7B](#) [DMN1006UCA6-7](#) [DMN16M9UCA6-7](#) [STF5N65M6](#) [IRF40H233XTMA1](#) [STU5N65M6](#) [DMN13M9UCA6-7](#) [STU7N60DM2](#) [DMTH10H4M6SPS-13](#) [DMN2990UFB-7B](#) [2N7002W-G](#) [MCQ7328-TP](#) [IPB45P03P4L11ATMA2](#) [BXP4N65F](#) [BXP2N20L](#) [BXP2N65D](#) [TSM60NB380CP](#) [ROG](#) [SLF10N65ABV2](#) [IRF9395MTRPBF](#) [FCMT080N65S3](#) [NTD5C632NLT4G](#) [NTMFS0D55N03CGT1G](#) [NTMFS1D15N03CGT1G](#) [NTMTS0D4N04CTXG](#) [NTMYS2D1N04CLTWG](#) [NVD360N65S3T4G](#) [NVD5C464NLT4G](#) [NVMTS001N06CLTXG](#)