

## N-Channel Enhancement-Mode MOSFET (30V, 5.8A)

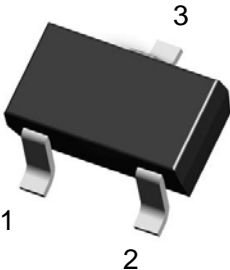
### PRODUCT SUMMARY

$V_{DS}$	$I_D$	$R_{DS(on)}$ (m-ohm) Max
30V	5.8A	28 @ $V_{GS} = 10V, I_D=5.8A$
		43 @ $V_{GS} = 4.5V, I_D=5.0A$

### Features

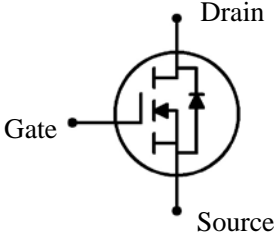
- Super high dense cell trench design for low  $R_{DS(on)}$ .
- Rugged and reliable.
- SOT-23-3L package
- Ordering information: GV3404-G(Lead(Pb)-free and halogen-free)





GV3404 Pin Assignment & Symbol

3-Lead Plastic **SOT-23-3L**  
Pin 1: Gate 2: Source 3: Drain



### Absolute Maximum Ratings ( $T_A=25^\circ\text{C}$ , unless otherwise noted)

Symbol	Parameter	Ratings	Units
$V_{DS}$	Drain-Source Voltage	30	V
$V_{GS}$	Gate-Source Voltage	$\pm 20$	V
$I_D$	Drain Current (Continuous) @ $T_A=25^\circ\text{C}$	5.8	A
$I_{DM}$	Drain Current (Pulsed) <sup>a</sup>	20	A
$P_D$	Total Power Dissipation @ $T_A=25^\circ\text{C}$	1.4	W
$T_j, T_{stg}$	Operating Junction and Storage Temperature Range	-55 to +150	$^\circ\text{C}$
$R_{\theta JA}$	Thermal Resistance Junction to Ambient (PCB mounted) <sup>b</sup>	90	$^\circ\text{C/W}$

Note: a: Repetitive Rating; Pulse width limited by the maximum junction temperature.  
 b: 1-in<sup>2</sup> 2oz Cu PCB board

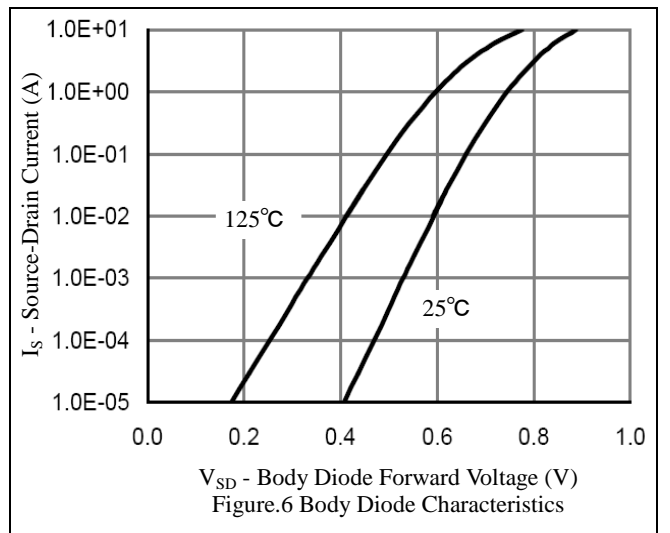
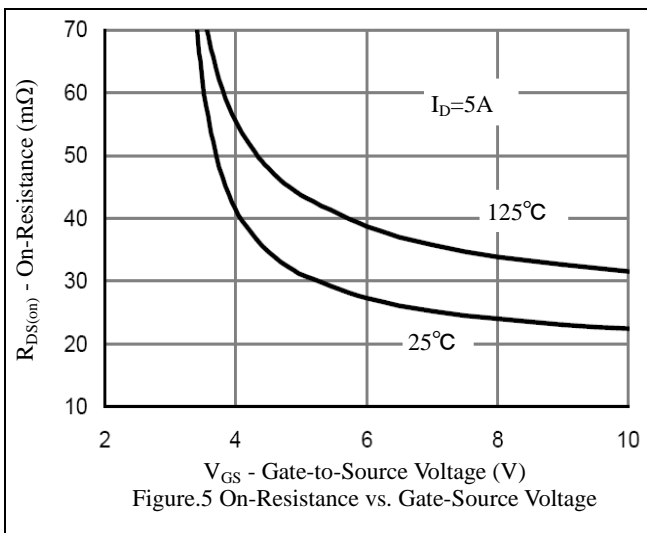
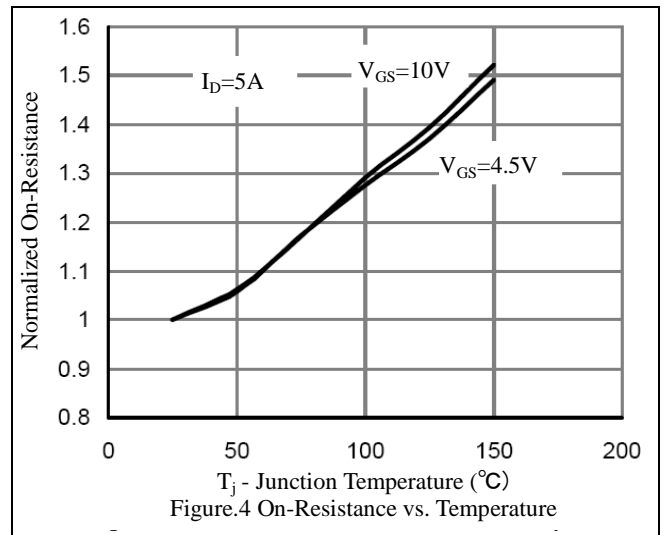
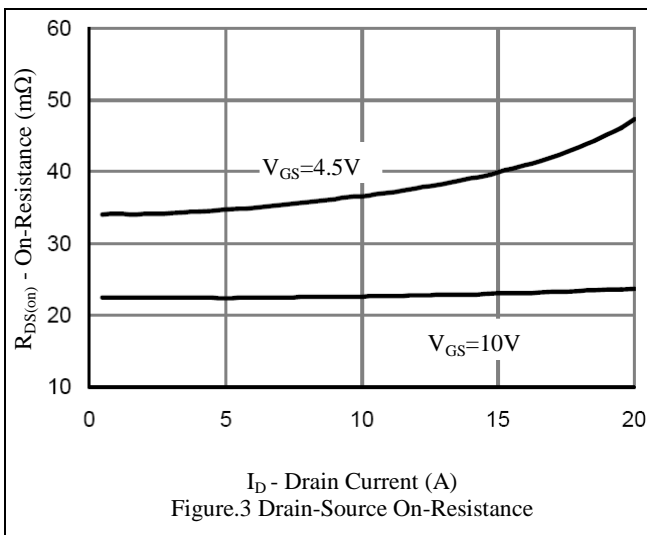
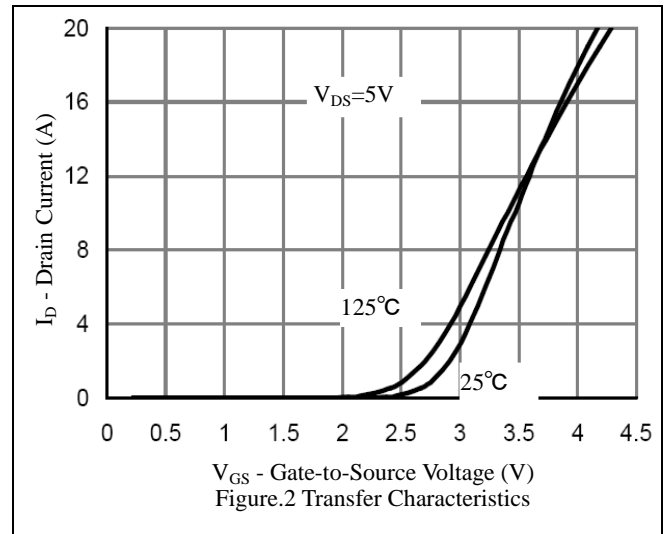
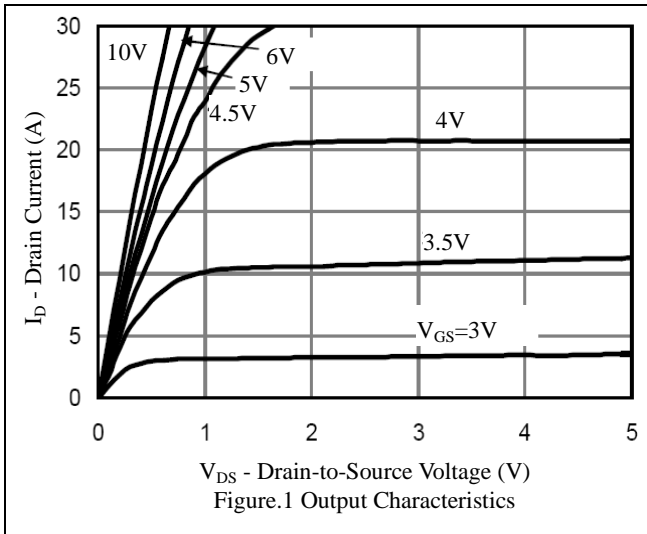
## Electrical Characteristics (T<sub>A</sub>=25°C, unless otherwise noted)

Symbol	Characteristic	Test Conditions	Min.	Typ.	Max.	Unit
<b>• Off Characteristics</b>						
BV <sub>DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>D</sub> =250μA	30	-	-	V
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> =30V, V <sub>GS</sub> =0V	-	-	1	μA
		V <sub>DS</sub> =24V, V <sub>GS</sub> =0V, T <sub>J</sub> =55°C	-	-	5	
I <sub>GSS</sub>	Gate-Body Leakage Current	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V	-	-	±100	nA
<b>• On Characteristics<sup>c</sup></b>						
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	1	-	3	V
I <sub>D(on)</sub>	On state drain current	V <sub>GS</sub> =4.5V, V <sub>DS</sub> =5V	20	-	-	A
R <sub>DS(on)</sub>	Drain-Source On-State Resistance	V <sub>GS</sub> =10V, I <sub>D</sub> =5.8A	-	22.5	28	mΩ
		V <sub>GS</sub> =10V, I <sub>D</sub> =5.8A, T <sub>J</sub> =125°C	-	31.3	38	
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =5A	-	34.5	43	
g <sub>FS</sub>	Forward Transconductance	V <sub>DS</sub> =5V, I <sub>D</sub> =5.8A	-	14.5	-	S
<b>• Dynamic Characteristics<sup>d</sup></b>						
C <sub>iss</sub>	Input Capacitance	V <sub>DS</sub> =15V, V <sub>GS</sub> =0V, f=1MHz	-	680	-	pF
C <sub>oss</sub>	Output Capacitance		-	102	-	
C <sub>rss</sub>	Reverse Transfer Capacitance		-	77	-	
R <sub>g</sub>	Gate resistance	V <sub>GS</sub> =0V, V <sub>DS</sub> =0V, f=1MHz	-	3	-	Ω
<b>• Switching Characteristics<sup>d</sup></b>						
Q <sub>g</sub> (10)	Total Gate Charge(10V)	V <sub>DS</sub> =15V, I <sub>D</sub> =5.8A, V <sub>GS</sub> =10V	-	13.88	-	nC
Q <sub>g</sub> (4.5)	Total Gate Charge(4.5V)		-	6.78	-	
Q <sub>gs</sub>	Gate-Source Charge		-	1.8	-	
Q <sub>gd</sub>	Gate-Drain Charge		-	3.12	-	
t <sub>d(on)</sub>	Turn-on Delay Time	V <sub>DS</sub> =15V, R <sub>L</sub> =2.7Ω, V <sub>GS</sub> =10V, R <sub>GEN</sub> =3Ω	-	4.6	-	nS
t <sub>r</sub>	Turn-on Rise Time		-	3.8	-	
t <sub>d(off)</sub>	Turn-off Delay Time		-	20.9	-	
t <sub>f</sub>	Turn-off Fall Time		-	5	-	
t <sub>rr</sub>	Body Diode Reverse Recovery Time	I <sub>F</sub> =5.8A, dI/dt=100A/μs	-	16.1	-	nS
Q <sub>rr</sub>	Body Diode Reverse Recovery Charge	I <sub>F</sub> =5.8A, dI/dt=100A/μs	-	7.4	-	nC
<b>• Drain-Source Diode Characteristics</b>						
V <sub>SD</sub>	Drain-Source Diode Forward Voltage	V <sub>GS</sub> =0V, I <sub>S</sub> =1A	-	-	1	V
I <sub>S</sub>	Maximum Body-Diode Continuous Current		-	-	2.5	A
	Pulsed Body-Diode Current		-	-	20	A

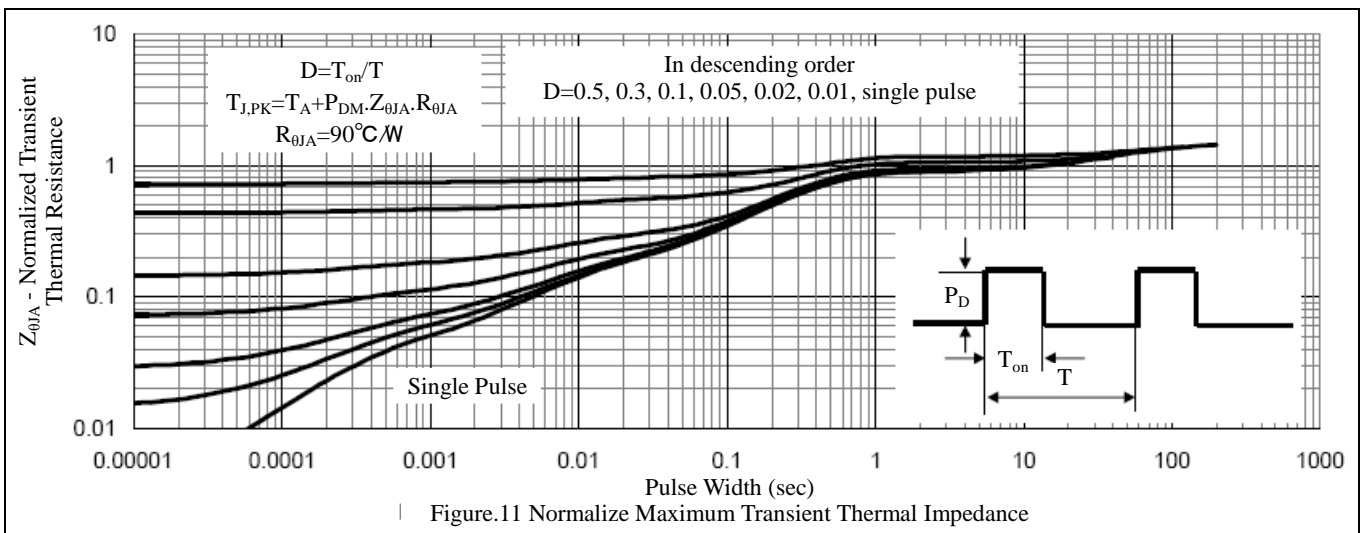
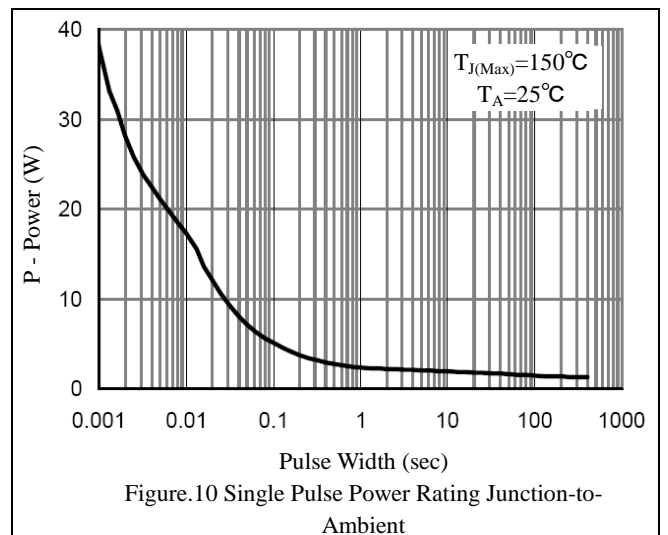
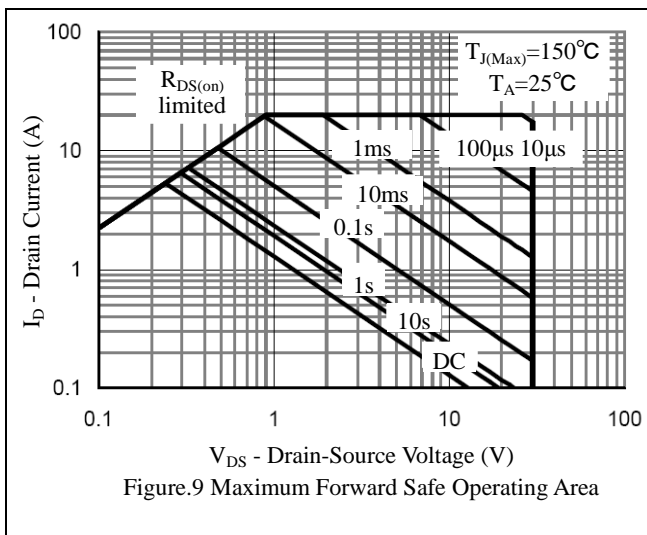
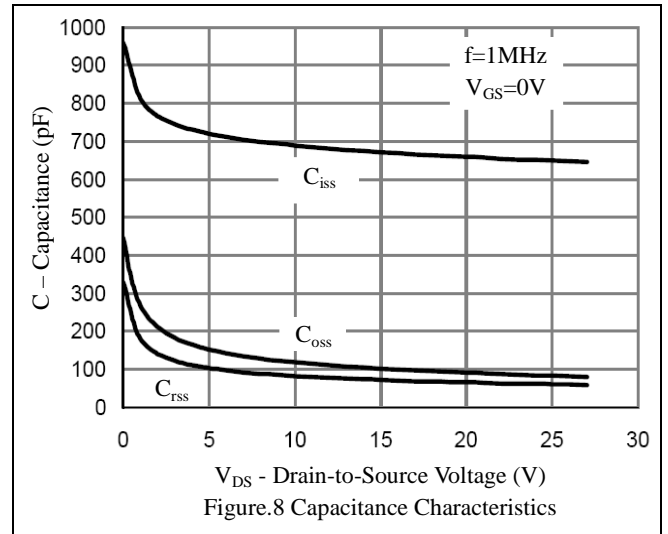
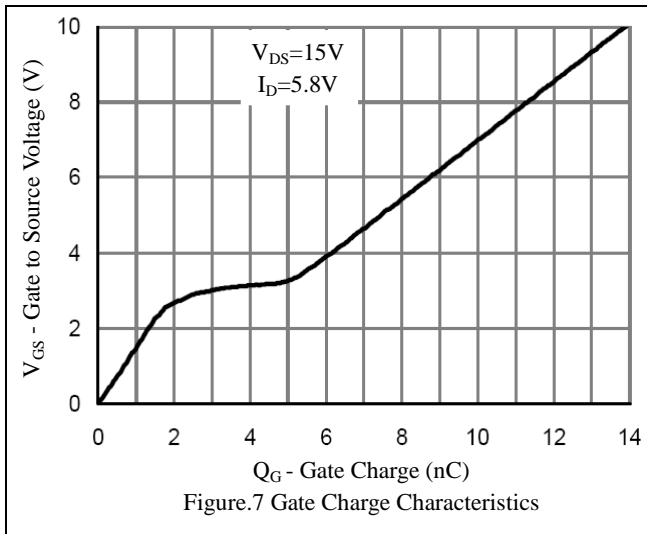
Note: c: Pulse Test : Pulse Width < 300μs, Duty Cycle < 2%

d: Guaranteed by design, not subject to production testing.

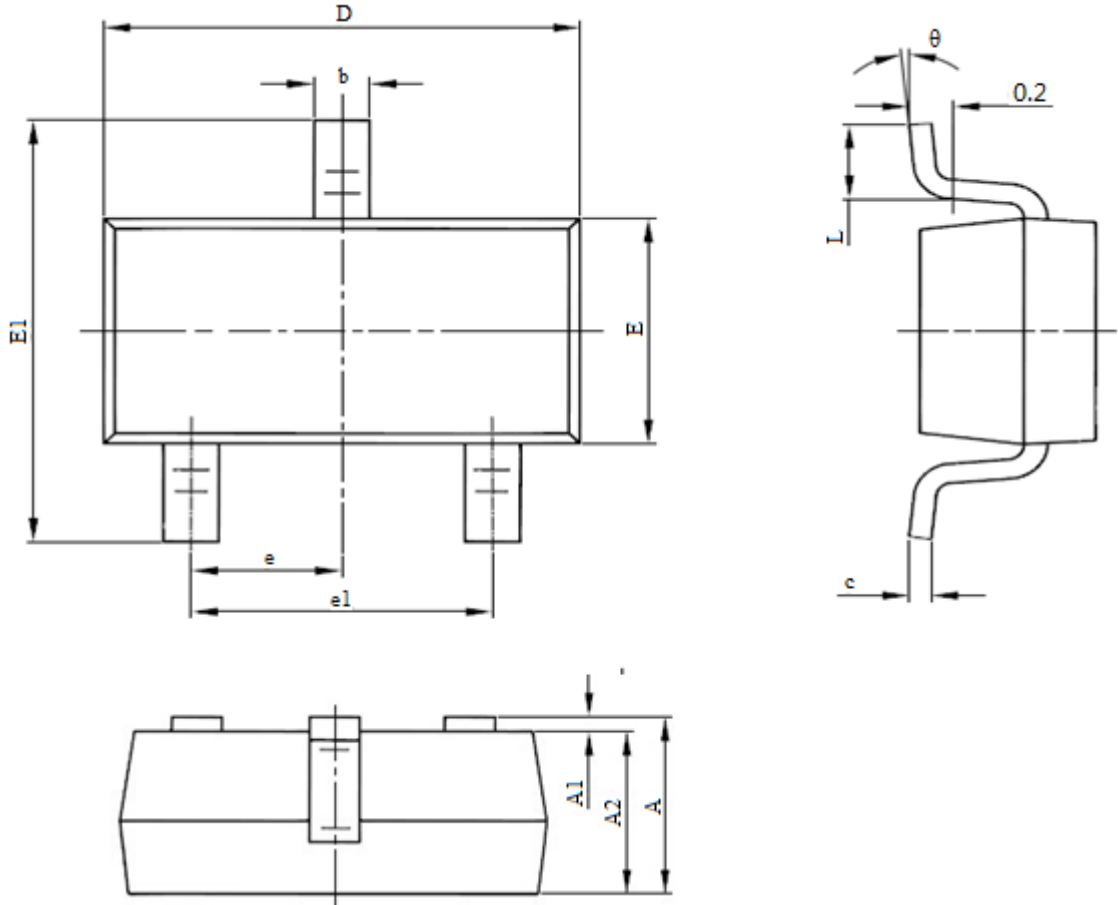
## Characteristics Curve



## Characteristics Curve



## SOT-23 PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.85	1.25	0.033	0.049
A1	0	0.1	0	0.004
A2	0.7	1.15	0.028	0.045
b	0.3	0.5	0.012	0.020
c	0.1	0.2	0.004	0.008
D	2.82	3.02	0.111	0.119
E	1.5	1.7	0.059	0.067
E1	2.65	2.95	0.104	0.116
e	0.95(BSC)		0.037(BSC)	
e1	1.8	2	0.071	0.079
L	0.3	0.6	0.012	0.024
$\theta$	0°	8°	0°	8°



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