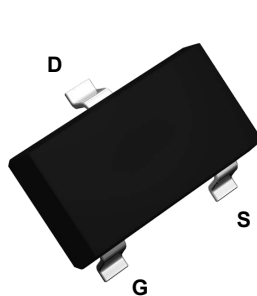
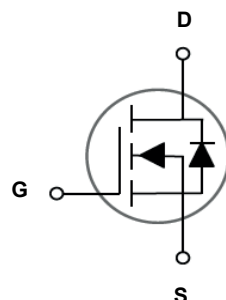


Main Product Characteristics

BV_{DSS}	20V
$R_{DS(ON)}$	64mΩ(Max.)
I_D	4A



SOT-23



Schematic Diagram

Features and Benefits

- Advanced MOSFET process technology
- Ideal for high efficiency switched mode power supplies
- Low on-resistance with low gate charge
- Fast switching and reverse body recovery



Description

The GSFC0204 utilizes the latest techniques to achieve high cell density and low on-resistance. These features make this device extremely efficient and reliable for use in high efficiency switch mode power supply and a wide variety of other applications.

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

Parameter	Symbol	Max.	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	± 10	V
Drain Current-Continuous ($T_C=25^{\circ}\text{C}$)	I_D	4	A
Drain Current-Continuous ($T_C=100^{\circ}\text{C}$)		2.6	
Drain Current-Pulsed ¹	I_{DM}	16	A
Power Dissipation ($T_C=25^{\circ}\text{C}$)	P_D	1.50	W
Power Dissipation-Derate above 25°C		0.012	W/ $^{\circ}\text{C}$
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	80	$^{\circ}\text{C}/\text{W}$
Operating Junction Temperature Range	T_J	-55 To +150	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	-55 To +150	$^{\circ}\text{C}$

Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
On / Off Characteristics						
Drain-to-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250μA	20	-	-	V
Drain-to-Source Leakage Current	I _{DSS}	V _{DS} =20V, V _{GS} =0V	-	-	1	μA
Gate-to-Source Forward Leakage	I _{GSS}	V _{DS} =0V, V _{GS} =10V	-	-	100	nA
		V _{DS} =0V, V _{GS} =-10V	-	-	-100	
Static Drain-to-Source On-Resistance	R _{DS(on)}	V _{GS} =4.5V, I _D =3A	-	51	64	mΩ
		V _{GS} =2.5V, I _D =2A	-	63	80	
		V _{GS} =2.5V, I _D =1A	-	88	116	
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.4	0.6	1.0	V
Dynamic and Switching Characteristics						
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =10V, f=1MHz	-	154	-	pF
Output Capacitance	C _{oss}		-	23	-	
Reverse Transfer Capacitance	C _{rss}		-	18	-	
Total Gate Charge	Q _g	I _D =1A, V _{DS} =10V, V _{GS} =4.5V	-	3.2	-	nC
Gate-to-Source Charge	Q _{gs}		-	0.6	-	
Gate-to-Drain ("Miller") Charge	Q _{gd}		-	1.0	-	
Turn-on Delay Time	t _{d(on)}	V _{GS} =4.5V, V _{DS} =10V, R _{GEN} =25Ω, I _D =1A	-	6.5	-	nS
Rise Time	t _r		-	8.4	-	
Turn-Off Delay Time	t _{d(off)}		-	31	-	
Fall Time	t _f		-	22	-	
Source-Drain Ratings and Characteristics						
Continuous Source Current	I _S	MOSFET symbol showing the integral reverse p-n junction diode.	-	-	4.0	A
Pulse Source Current	I _{SM}		-	-	16	A
Diode Forward Voltage	V _{SD}	I _S =1A, V _{GS} =0V	-	0.68	1.0	V
Reverse Recovery Time	T _{rr}	I _F =1A, di/dt=100A/μs	-	4.1	-	ns
Reverse Recovery Charge	Q _{rr}		-	0.86	-	nC

Note:

1. Pulse test: pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.

Typical Electrical and Thermal Characteristic Curves

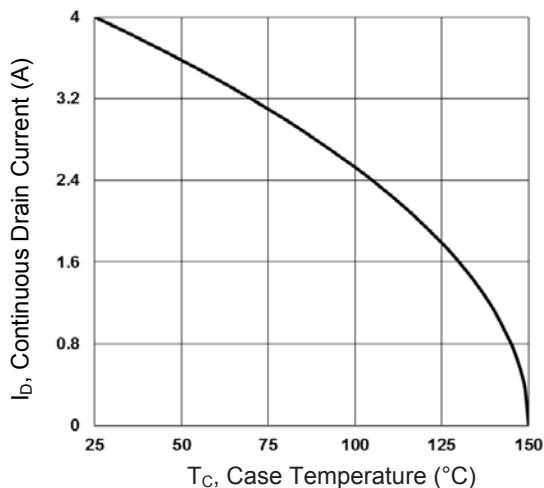


Figure 1. Continuous Drain Current vs. T_C

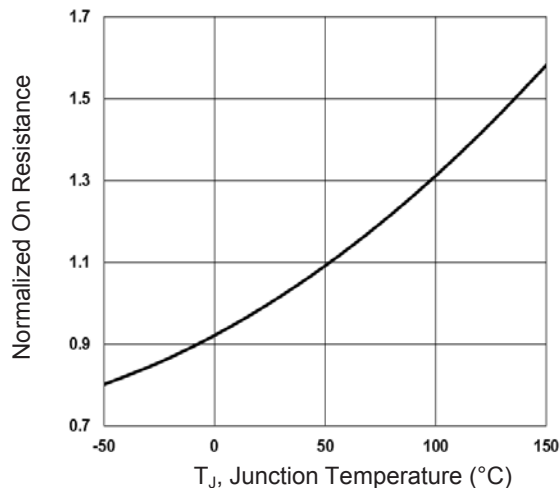


Figure 2. Normalized $R_{DS(on)}$ vs. T_J

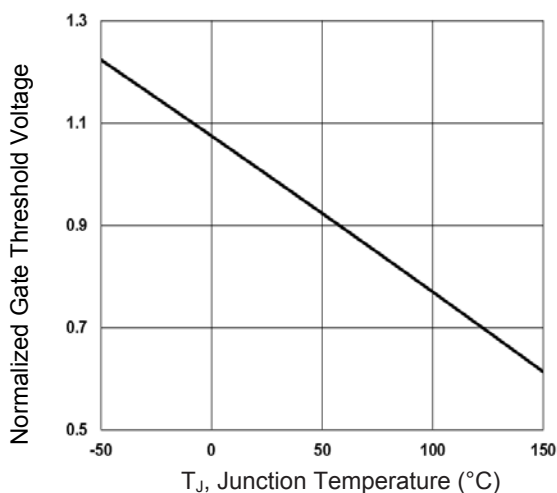


Figure 3. Normalized V_{th} vs. T_J

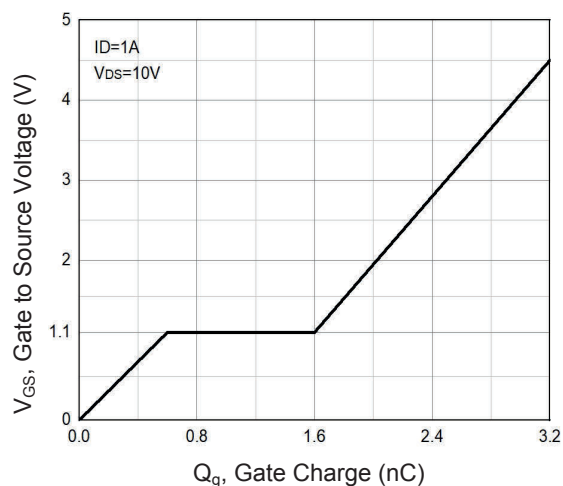


Figure 4. Gate Charge Waveform

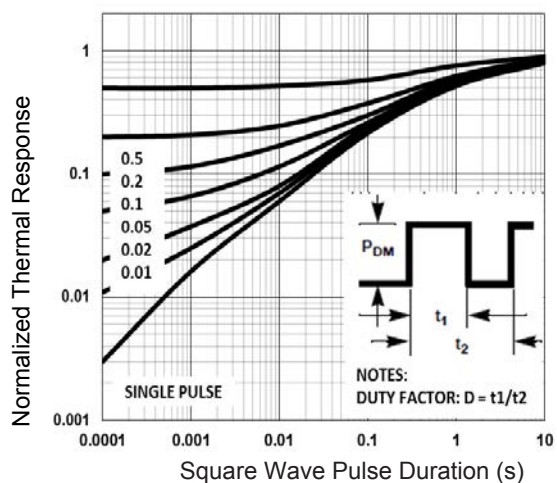


Figure 5. Normalized Transient Impedance

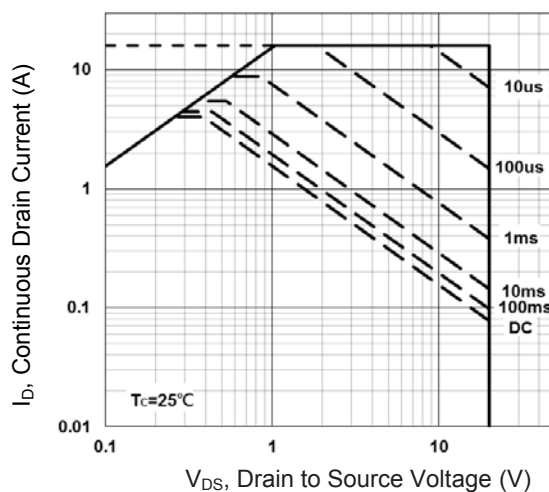
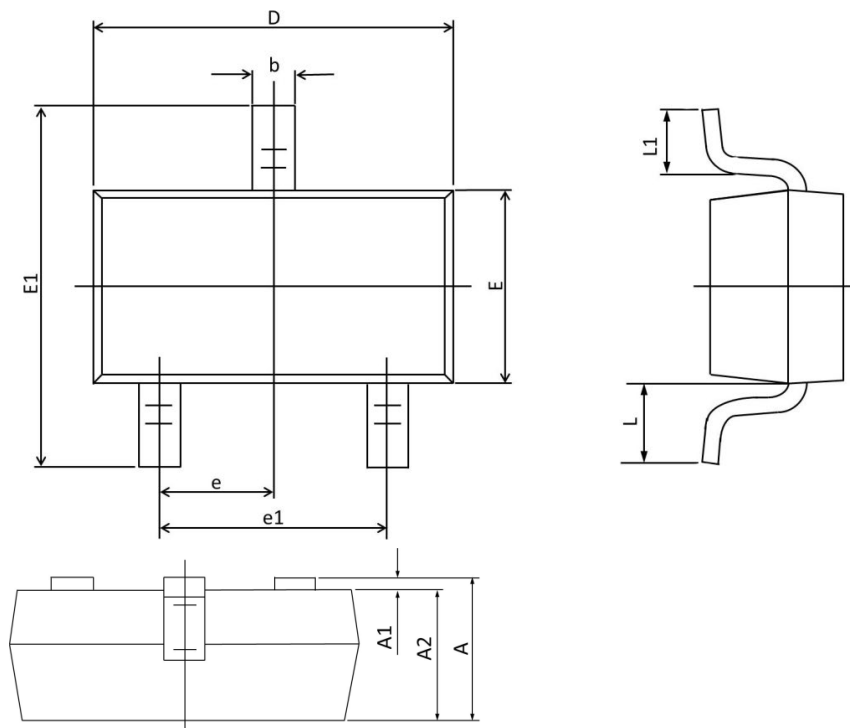


Figure 6. Maximum Safe Operation Area

Package Outline Dimensions (SOT-23)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.200	0.035	0.047
A1	0.000	0.100	0.000	0.004
A2	0.900	1.150	0.035	0.045
b	0.300	0.500	0.012	0.020
D	2.800	3.040	0.110	0.120
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.95 TYP.		0.037 TYP.	
e1	1.800	2.000	0.071	0.079
L	0.55 REF.		0.022 REF.	
L1	0.300	0.500	0.012	0.020

Order Information

Device	Package	Marking	Carrier	Quantity
GSFC0204	SOT-23	L* (* varied by lot)	Tape & Reel	3,000 pcs / Reel

For more information, please contact us at: inquiry@goodarksemi.com