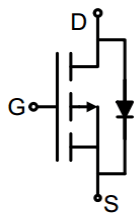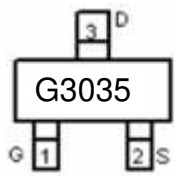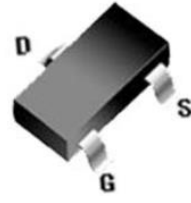# P-Channel Enhancement Mode Power MOSFET

Description

The G3035 uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge. It can be used in a wide variety of applications.

General Features

- V_{DS} -30V
- I_D (at V_{GS} = -10V)   -4.6A
- $R_{DS(ON)}$ (at V_{GS} = - 10V)   < 59mΩ
- $R_{DS(ON)}$ (at V_{GS} = - 4.5V)   < 75mΩ
- 100% Avalanche Tested
- RoHS Compliant

Application

- Power switch
- DC/DC converters

Schematic diagram

G3035

Marking and pin assignment

SOT-23

Device	Package	Marking	Packaging
G3035	SOT-23	G3035	3000pcs/Reel

Absolute Maximum Ratings T_C = 25ºC, unless otherwise noted

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-30	V
Continuous Drain Current	I_D	-4.6	A
Pulsed Drain Current (note1)	I_{DM}	-20	A
Gate-Source Voltage	V_{GS}	±20	V
Power Dissipation	P_D	1.4	W
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 To 150	ºC

Thermal Resistance

Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-Ambient	R_{thJA}	90	ºC/W

Specifications $T_J = 25^\circ C$, unless otherwise noted

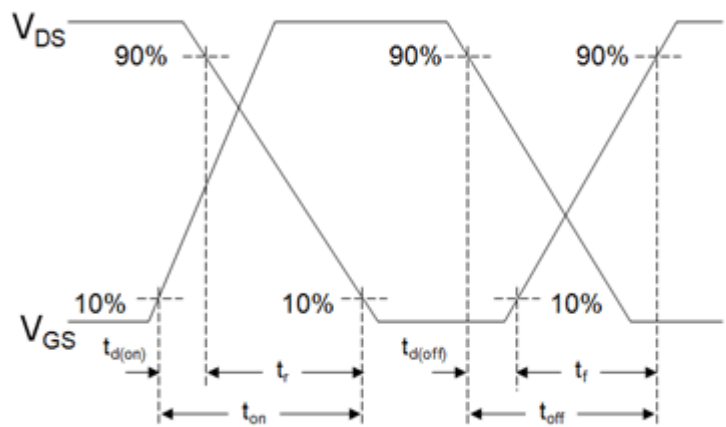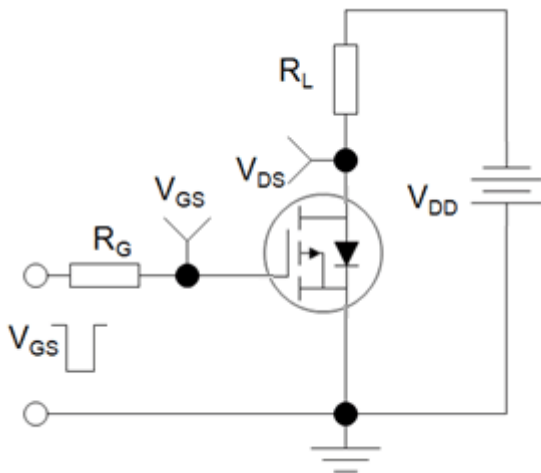| Parameter	Symbol	Test Conditions	Value			Unit
			Min.	Typ.	Max.	
Static Parameters						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V$, $I_D = -250\mu A$	-30	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -30V$, $V_{GS} = 0V$	--	--	-1	uA
Gate-Source Leakage	I_{GSS}	$V_{GS} = \pm20V$	--	--	±100	nA
Gate-Source Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = -250\mu A$	-1	-1.5	-2	V
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = -10V$, $I_D = -4A$	--	50	59	$m\Omega$
		$V_{GS} = -4.5V$, $I_D = -3A$	--	69	75	
Forward Transconductance	g_{FS}	$V_{DS}=-5V, I_D=-4A$	--	10	--	S
Dynamic Parameters						
Input Capacitance	C_{iss}	$V_{GS} = 0V$, $V_{DS} = -15V$, $f = 1.0MHz$	--	650	--	pF
Output Capacitance	C_{oss}		--	105	--	
Reverse Transfer Capacitance	C_{rss}		--	65	--	
Total Gate Charge	Q_g	$V_{DD} = -15V$, $I_D = -4.6A$, $V_{GS} = -10V$	--	13	--	nC
Gate-Source Charge	Q_{gs}		--	2.8	--	
Gate-Drain Charge	Q_{gd}		--	2.7	--	
Turn-on Delay Time	$t_{d(on)}$	$V_{DD} = -15V$, $I_D = -4A$, $R_G = 3\Omega$	--	9	--	ns
Turn-on Rise Time	t_r		--	5	--	
Turn-off Delay Time	$t_{d(off)}$		--	26	--	
Turn-off Fall Time	t_f		--	13	--	
Drain-Source Body Diode Characteristics						
Continuous Body Diode Current	I_S	$T_C = 25^\circ C$	--	--	-4.6	A
Body Diode Voltage	V_{SD}	$T_J = 25^\circ C$, $I_{SD} = -3A$, $V_{GS} = 0V$	--	--	-1.2	V

Notes

1. Repetitive Rating: Pulse width limited by maximum junction temperature

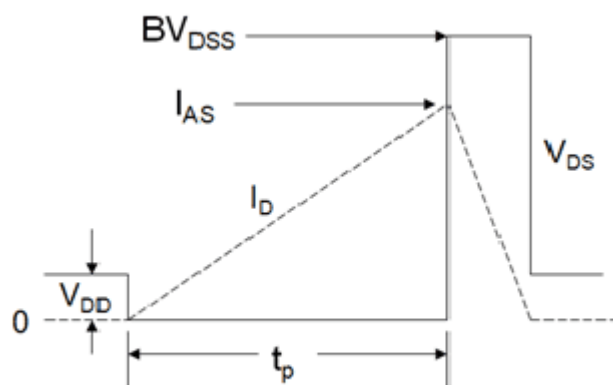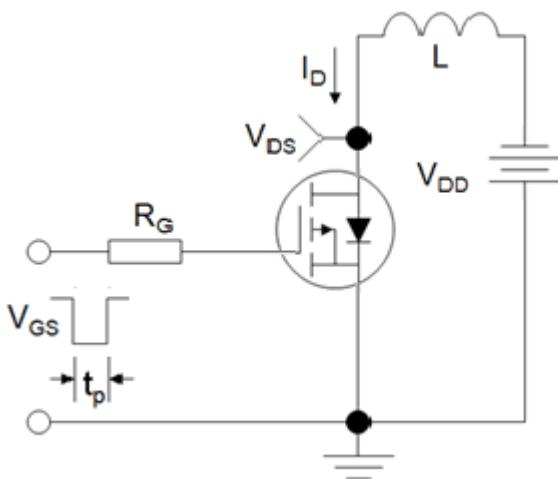2. Identical low side and high side switch with identical R_G

Gate Charge Test Circuit

Switch Time Test Circuit

EAS Test Circuit

Typical Characteristics $T_J = 25°C$, unless otherwise noted

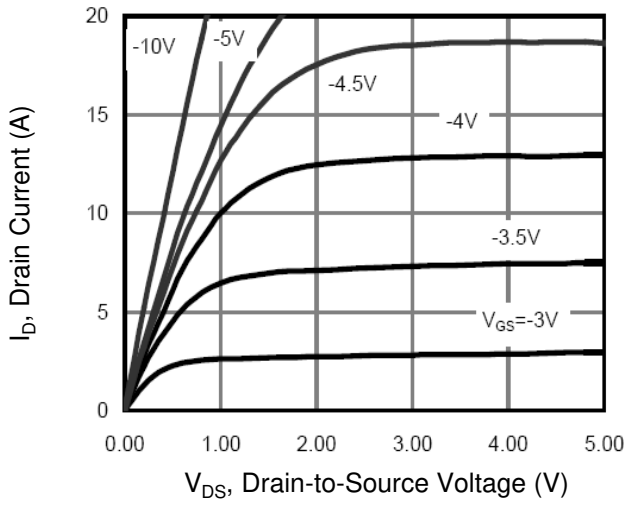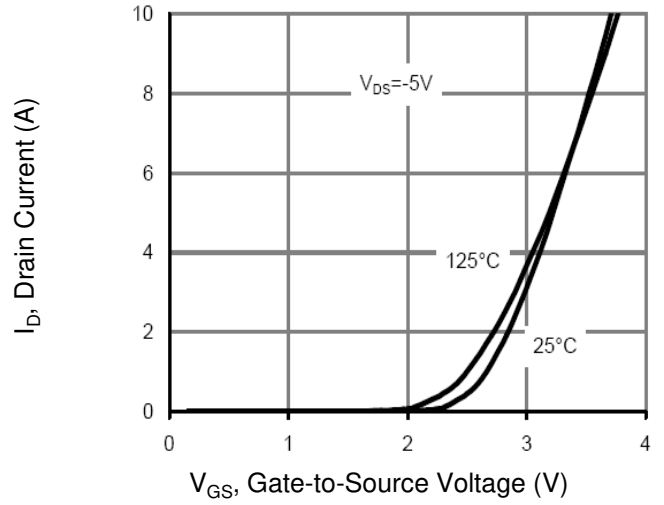**Figure 1. Output Characteristics**

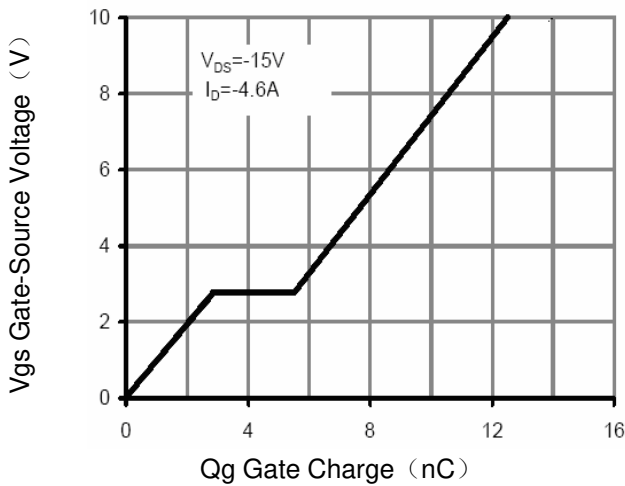
Figure 2. Transfer Characteristics

Figure 3. Gate Charge
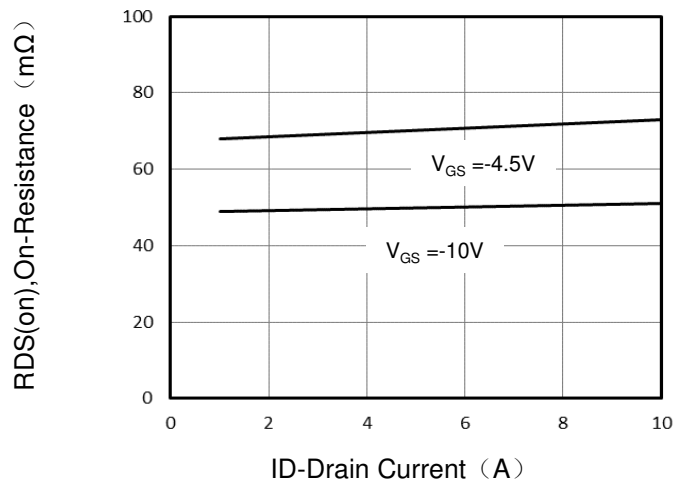

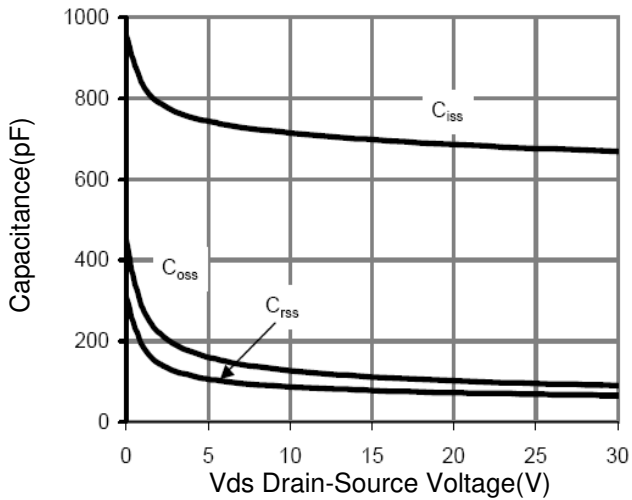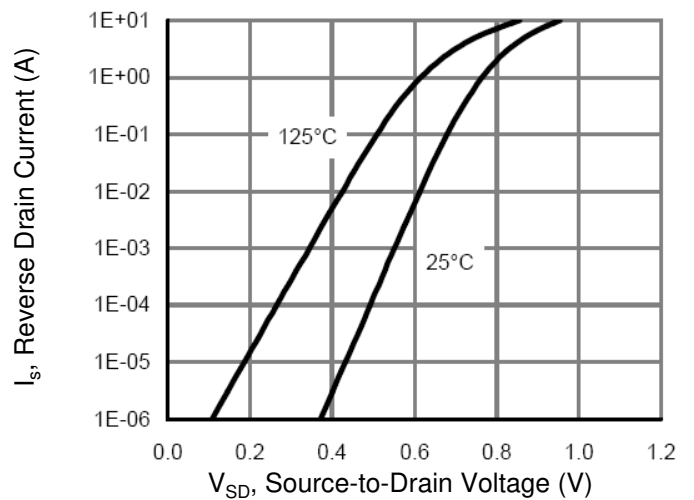**Figure 4. Drain Source On Resistance**

Figure 5. Capacitance

Figure 6. Source-Drain Diode Forward

Typical Characteristics T_J = 25ºC, unless otherwise noted
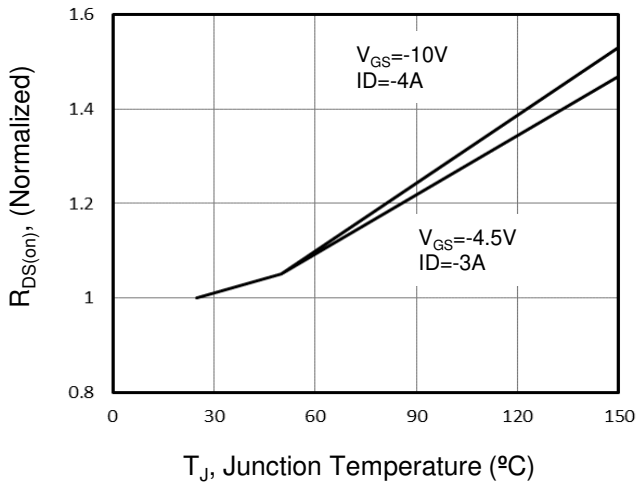
Figure 7. Drain-Source On-Resistance

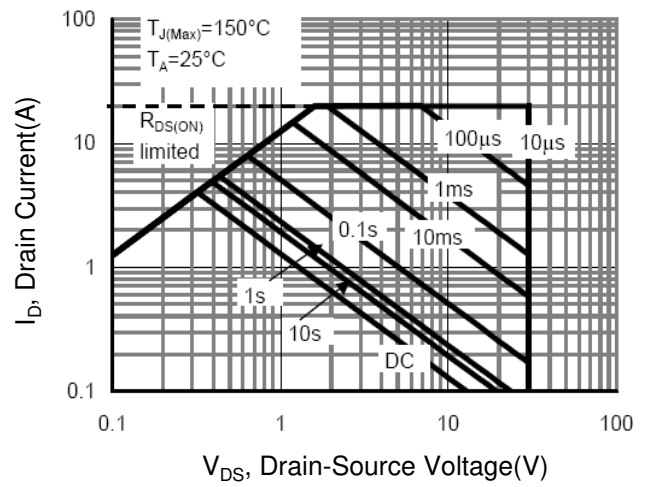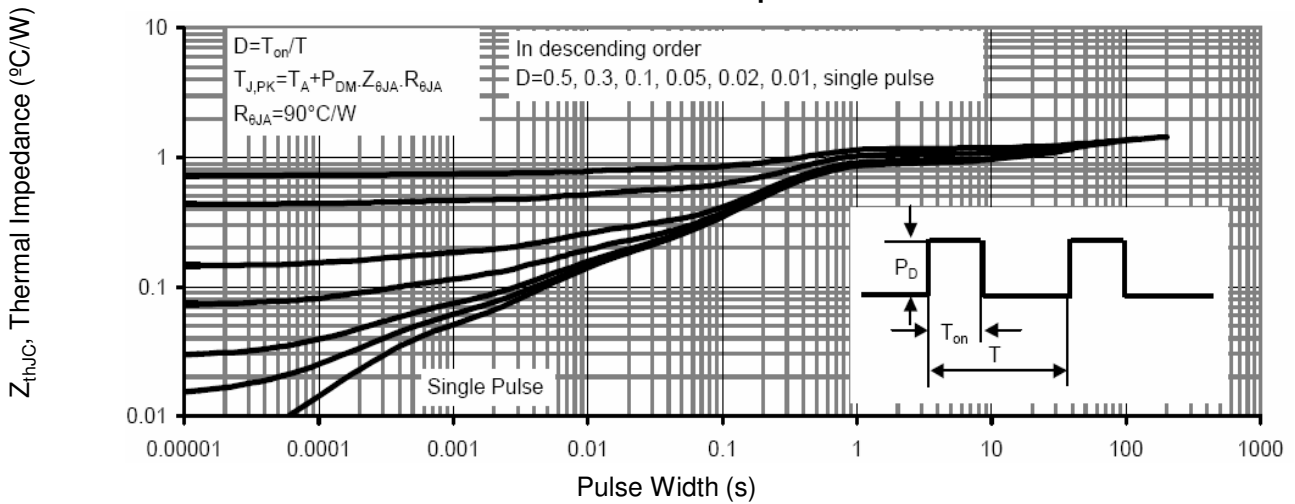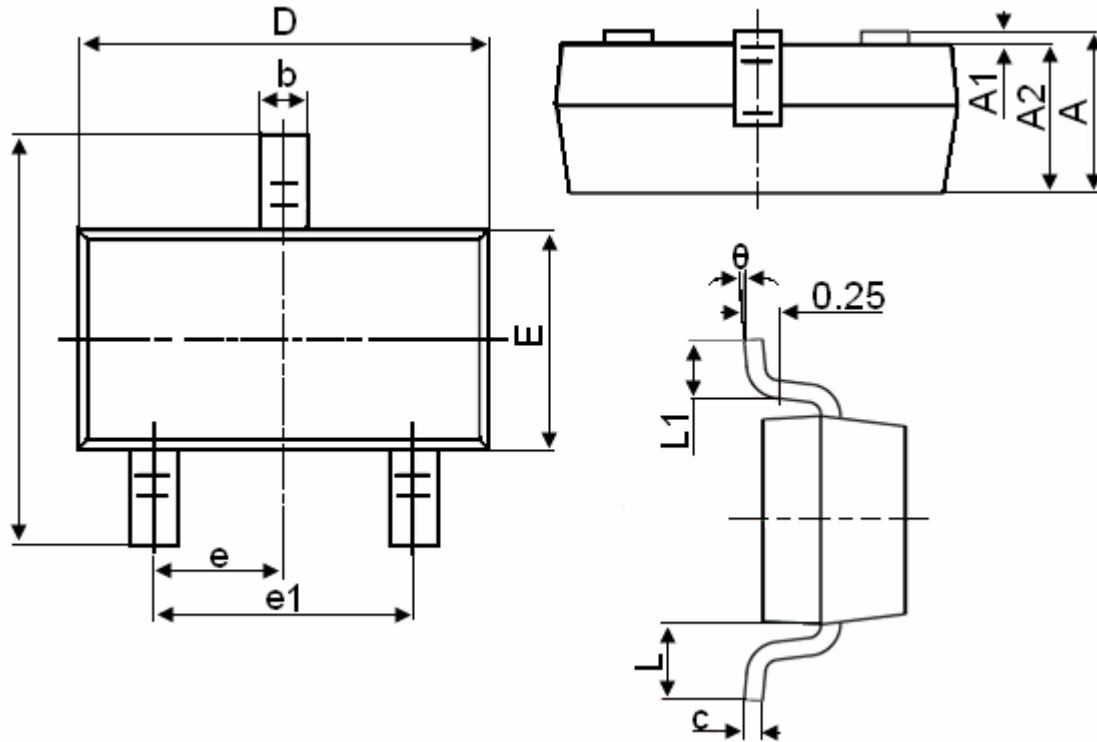### Figure 8. Safe Operation Area

Figure 9. Normalized Maximum Transient Thermal Impedance

SOT-23 Package Information

Symbol	Dimensions in Millimeters	
	MIN.	**MAX.**
A	0.900	1.150
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	2.800	3.000
E	1.200	1.400
E1	2.250	2.550
e	0.950TYP	
e1	1.800	2.000
L	0.550REF	
L1	0.300	0.500
θ	0°	8°