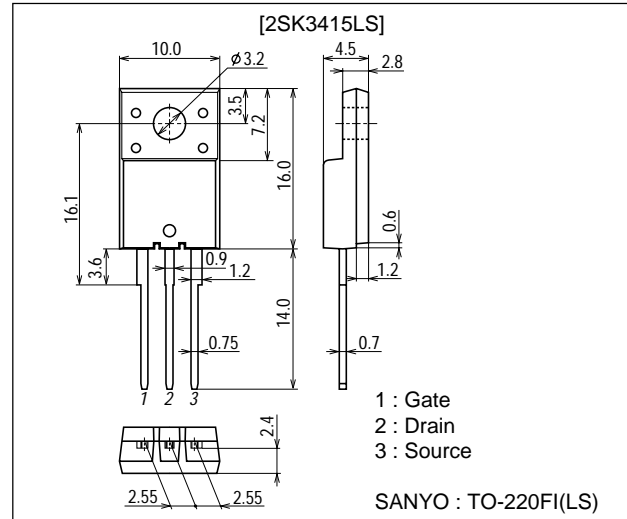


**2SK3415LS****DC / DC Converter, Motor Driver Applications****Features**

- Low ON-resistance.
- 4V drive.

**Package Dimensions**unit : mm  
2078C**Specifications**

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V <sub>DSS</sub>		60	V
Gate-to-Source Voltage	V <sub>GSS</sub>		±20	V
Drain Current (DC)	I <sub>D</sub>		40	A
Drain Current (Pulse)	I <sub>DP</sub>	PW≤10μs, duty cycle≤1%	160	A
Allowable Power Dissipation	P <sub>D</sub>		2.0	W
		T <sub>c</sub> =25°C	35	W
Channel Temperature	T <sub>ch</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +150	°C

**Electrical Characteristics at Ta=25°C**

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	I <sub>D</sub> =1mA, V <sub>GS</sub> =0	60			V
Zero-Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =60V, V <sub>GS</sub> =0			10	μA
Gate-to-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±16V, V <sub>DS</sub> =0			±10	μA
Cutoff Voltage	V <sub>GS(off)</sub>	V <sub>DS</sub> =10V, I <sub>D</sub> =1mA	1.0		2.4	V
Forward Transfer Admittance	y <sub>fs</sub>	V <sub>DS</sub> =10V, I <sub>D</sub> =20A	30	42		S
Static Drain-to-Source On-State Resistance	R <sub>DS(on)1</sub>	I <sub>D</sub> =20A, V <sub>GS</sub> =10V		13	17	mΩ
	R <sub>DS(on)2</sub>	I <sub>D</sub> =20A, V <sub>GS</sub> =4V		17	24	mΩ

Continued on next page.

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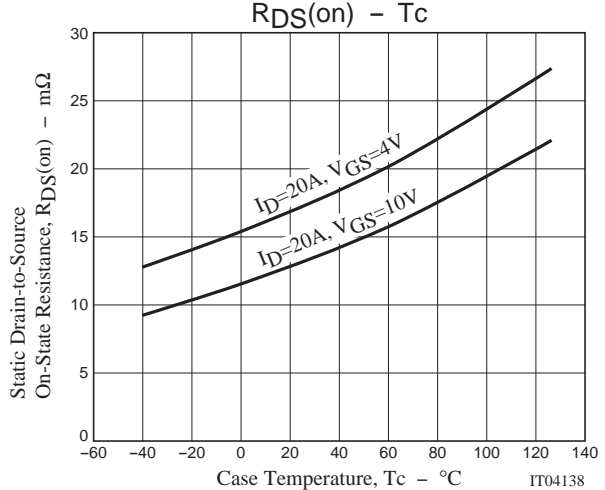
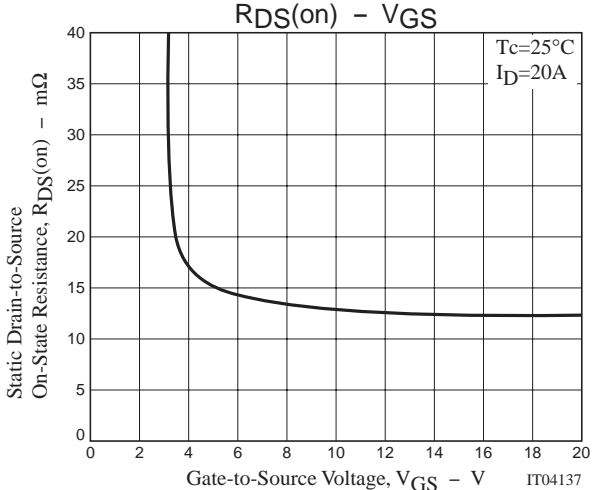
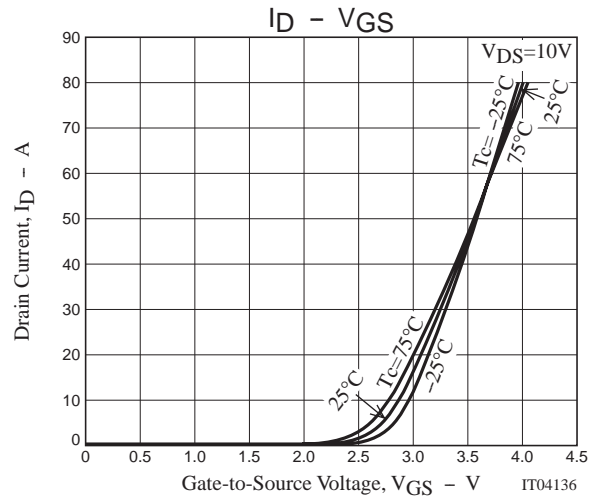
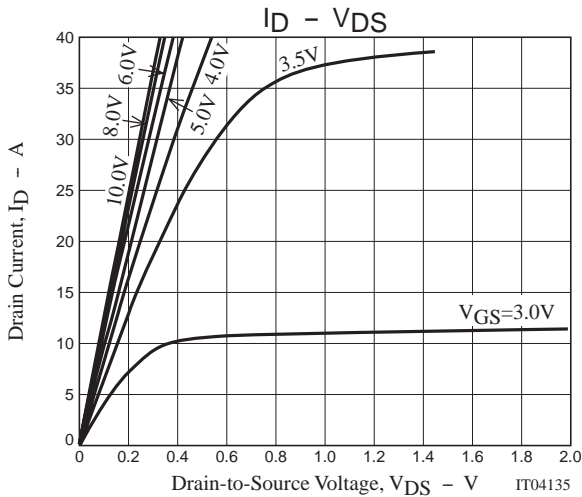
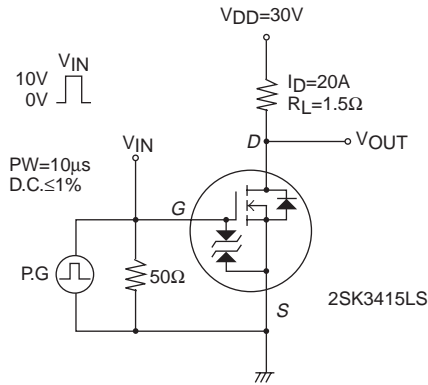
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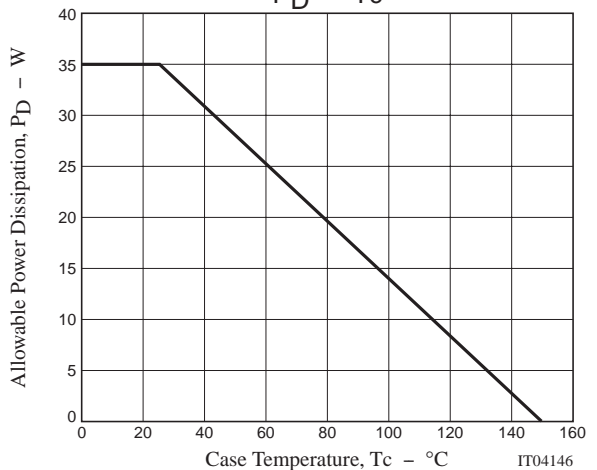
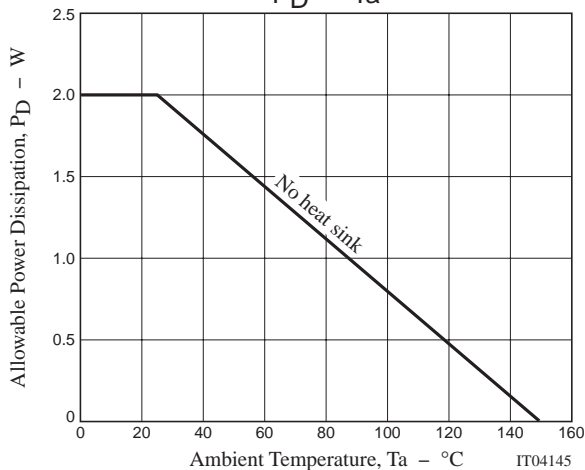
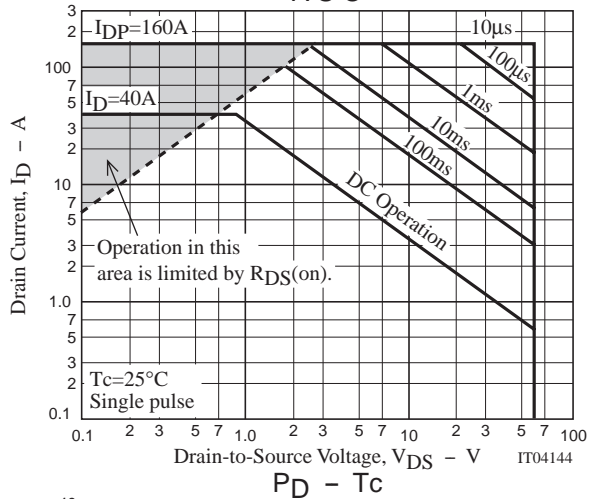
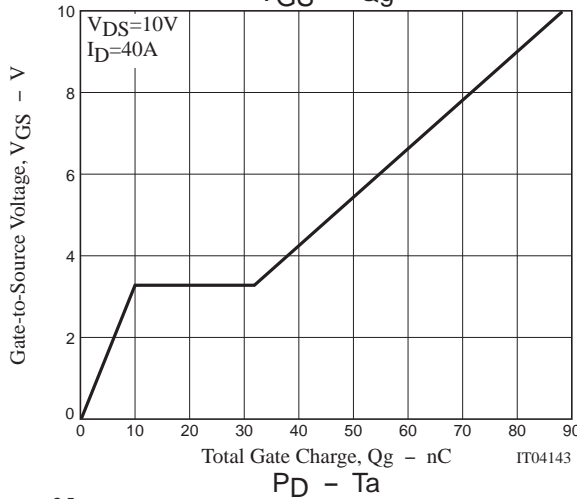
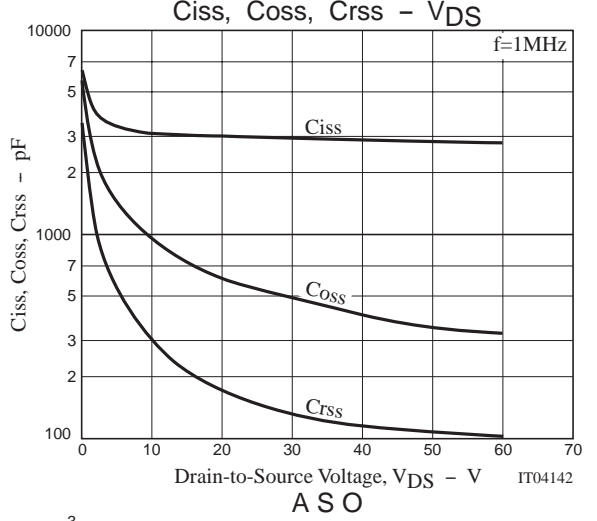
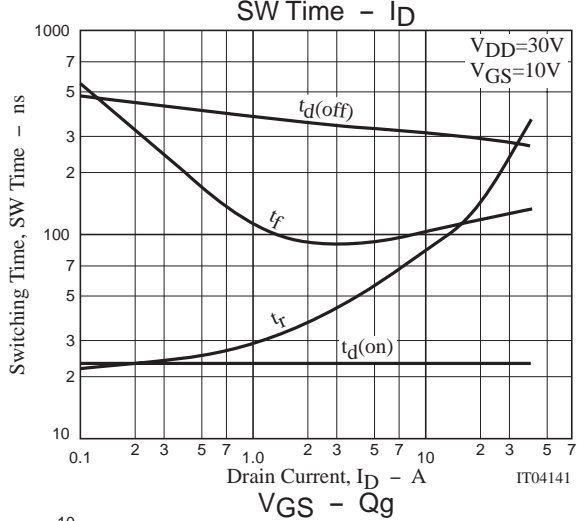
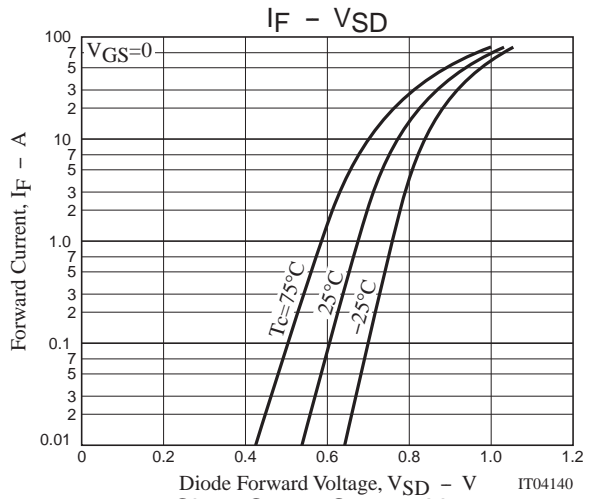
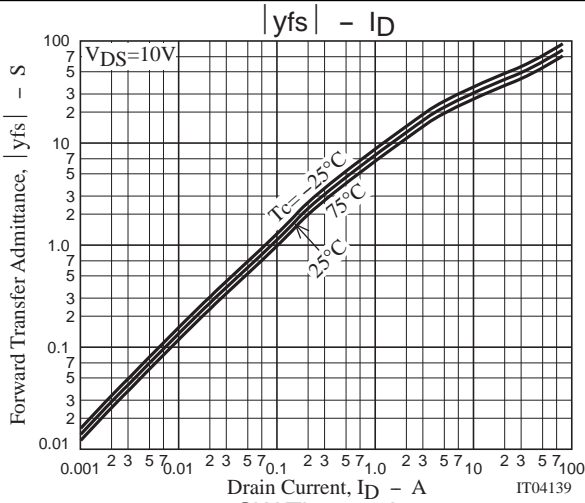
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	V <sub>DS</sub> =20V, f=1MHz		3000		pF
Output Capacitance	Coss	V <sub>DS</sub> =20V, f=1MHz		600		pF
Reverse Transfer Capacitance	Crss	V <sub>DS</sub> =20V, f=1MHz		180		pF
Turn-ON Delay Time	t <sub>d(on)</sub>	I <sub>D</sub> =18A, V <sub>GS</sub> =10V, V <sub>DD</sub> =30V, R <sub>GS</sub> =50Ω		23		ns
Rise Time	t <sub>r</sub>	I <sub>D</sub> =18A, V <sub>GS</sub> =10V, V <sub>DD</sub> =30V, R <sub>GS</sub> =50Ω		140		ns
Turn-OFF Delay Time	t <sub>d(off)</sub>	I <sub>D</sub> =18A, V <sub>GS</sub> =10V, V <sub>DD</sub> =30V, R <sub>GS</sub> =50Ω		290		ns
Fall Time	t <sub>f</sub>	I <sub>D</sub> =18A, V <sub>GS</sub> =10V, V <sub>DD</sub> =30V, R <sub>GS</sub> =50Ω		120		ns
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =10V, V <sub>GS</sub> =10V, I <sub>D</sub> =40A		89		nC
Gate-to-Source Charge	Q <sub>gs</sub>	V <sub>DS</sub> =10V, V <sub>GS</sub> =10V, I <sub>D</sub> =40A		10		nC
Gate-to-Drain "Miller" Charge	Q <sub>gd</sub>	V <sub>DS</sub> =10V, V <sub>GS</sub> =10V, I <sub>D</sub> =40A		22		nC
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =40A, V <sub>GS</sub> =0		0.9	1.2	V

## Switching Time Test Circuit



# 2SK3415LS



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