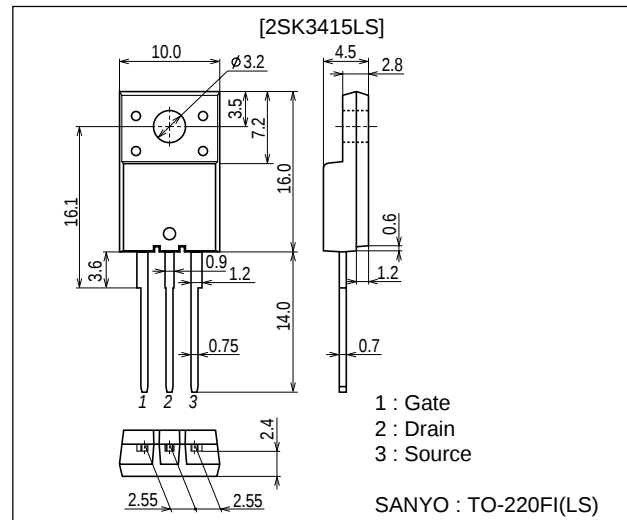


**2SK3415LS****DC / DC Converter, Motor Driver Applications****Features**

- Low ON-resistance.
- 4V drive.

Package Dimensions
 unit : mm
 2078C
**Specifications****Absolute Maximum Ratings** at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DS}		60	V
Gate-to-Source Voltage	V_{GS}		± 20	V
Drain Current (DC)	I_D		40	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu\text{s}$, duty cycle $\leq 1\%$	160	A
Allowable Power Dissipation	P_D		2.0	W
		$T_c=25^\circ\text{C}$	35	W
Channel Temperature	T_{ch}		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$

Electrical Characteristics at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=1\text{mA}$, $V_{GS}=0$	60			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=60\text{V}$, $V_{GS}=0$			10	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 16\text{V}$, $V_{DS}=0$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10\text{V}$, $I_D=1\text{mA}$	1.0		2.4	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10\text{V}$, $I_D=20\text{A}$	30	42		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=20\text{A}$, $V_{GS}=10\text{V}$		13	17	$\text{m}\Omega$
	$R_{DS(on)2}$	$I_D=20\text{A}$, $V_{GS}=4\text{V}$		17	24	$\text{m}\Omega$

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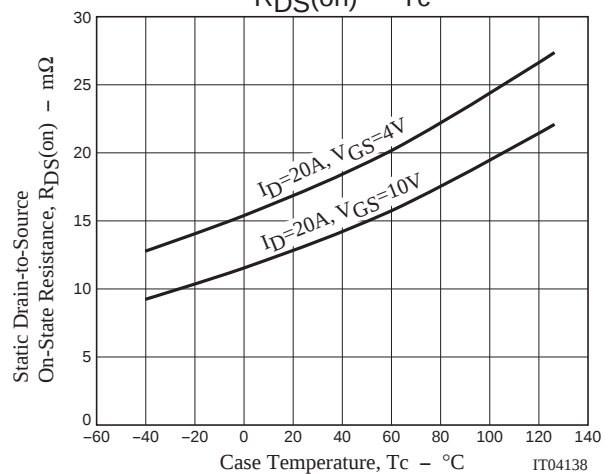
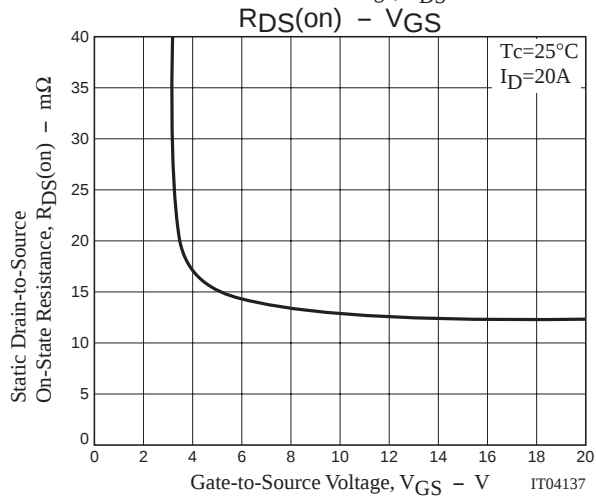
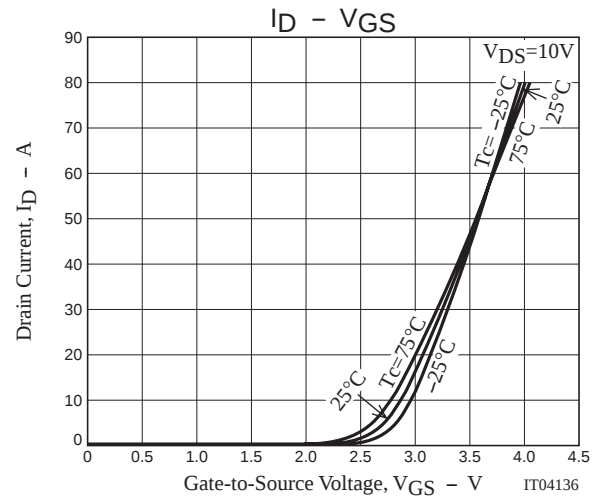
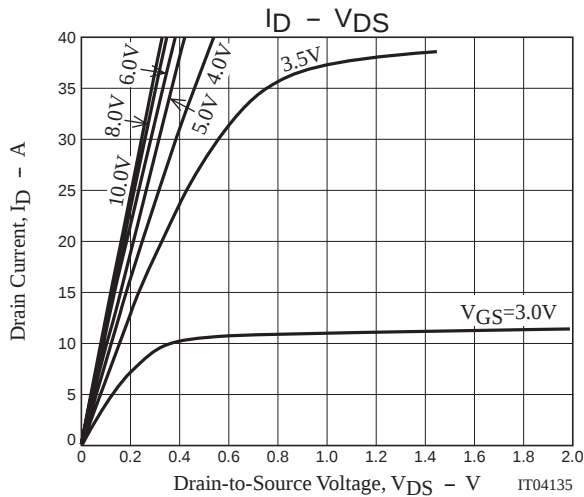
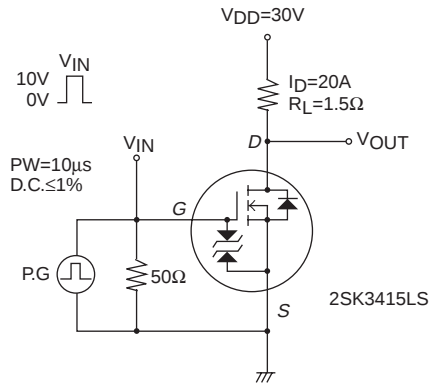
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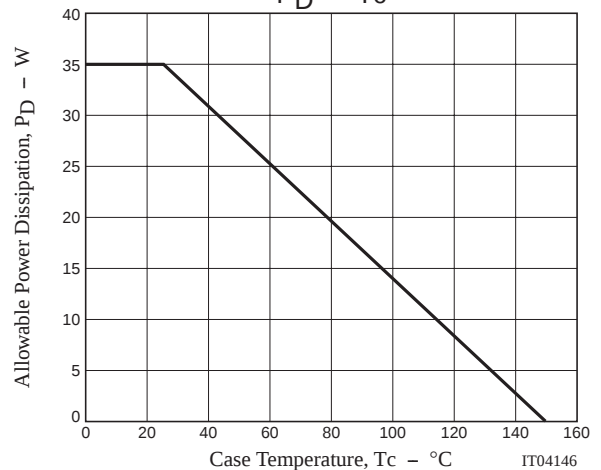
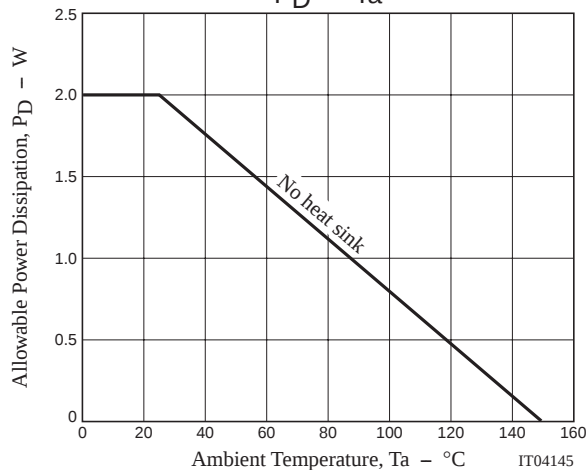
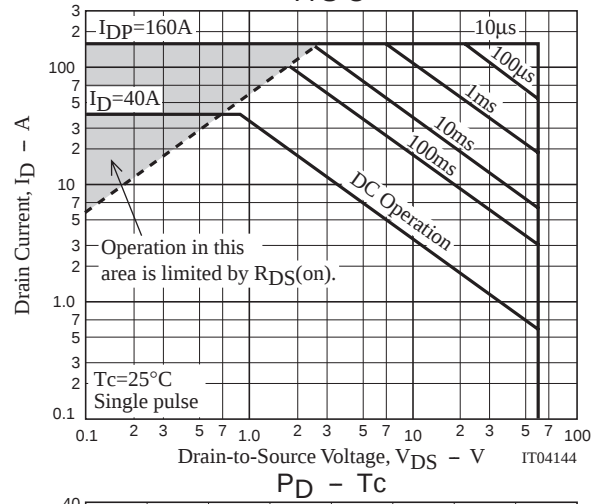
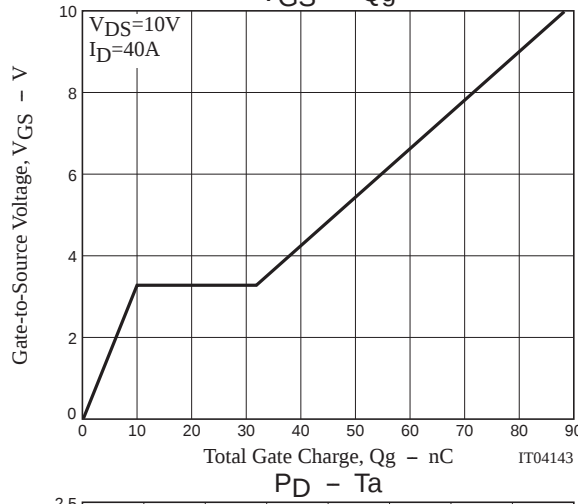
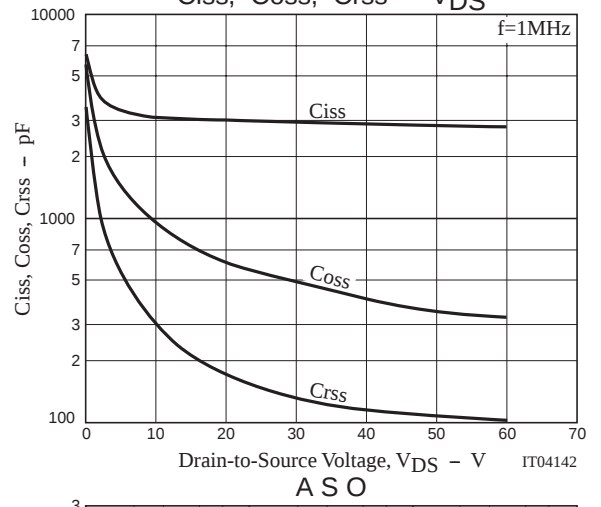
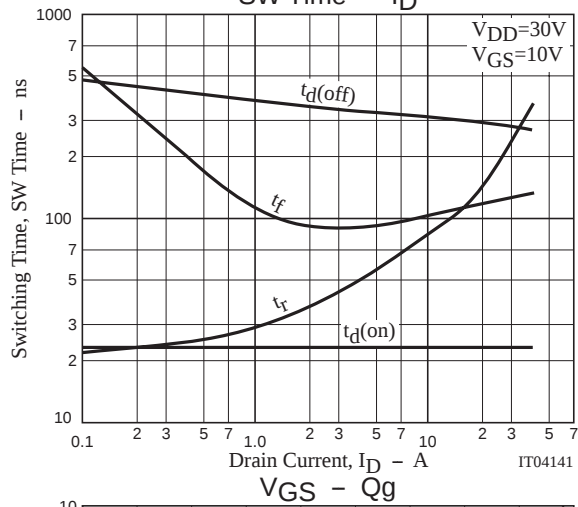
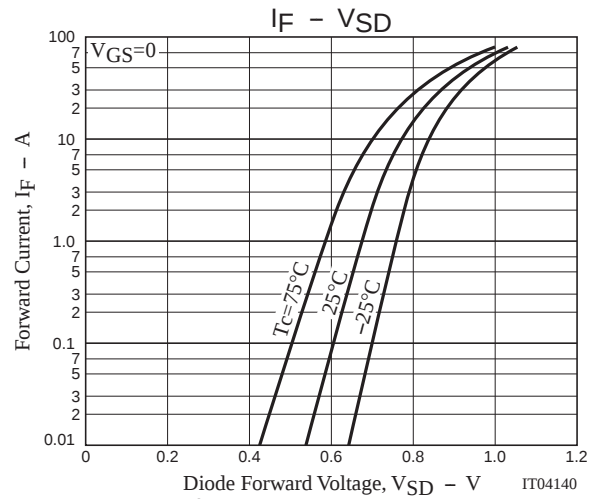
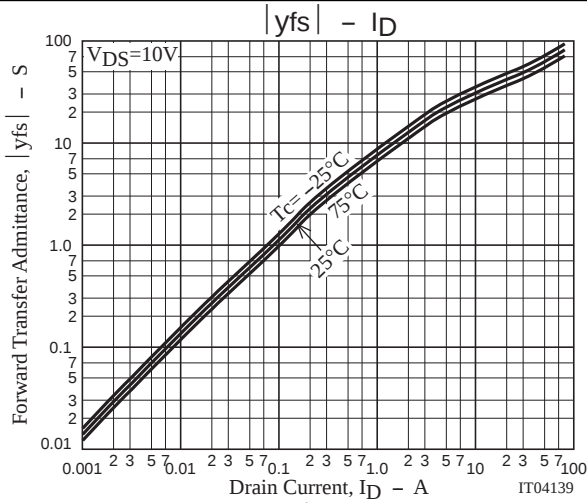
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	C_{iss}	$V_{DS}=20V, f=1MHz$		3000		pF
Output Capacitance	C_{oss}	$V_{DS}=20V, f=1MHz$		600		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS}=20V, f=1MHz$		180		pF
Turn-ON Delay Time	$t_d(on)$	$I_D=18A, V_{GS}=10V, V_{DD}=30V, R_{GS}=50\Omega$		23		ns
Rise Time	t_r	$I_D=18A, V_{GS}=10V, V_{DD}=30V, R_{GS}=50\Omega$		140		ns
Turn-OFF Delay Time	$t_d(off)$	$I_D=18A, V_{GS}=10V, V_{DD}=30V, R_{GS}=50\Omega$		290		ns
Fall Time	t_f	$I_D=18A, V_{GS}=10V, V_{DD}=30V, R_{GS}=50\Omega$		120		ns
Total Gate Charge	Q_g	$V_{DS}=10V, V_{GS}=10V, I_D=40A$		89		nC
Gate-to-Source Charge	Q_{gs}	$V_{DS}=10V, V_{GS}=10V, I_D=40A$		10		nC
Gate-to-Drain "Miller" Charge	Q_{gd}	$V_{DS}=10V, V_{GS}=10V, I_D=40A$		22		nC
Diode Forward Voltage	V_{SD}	$I_S=40A, V_{GS}=0$		0.9	1.2	V

Switching Time Test Circuit



2SK3415LS



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