



2SK3415LS

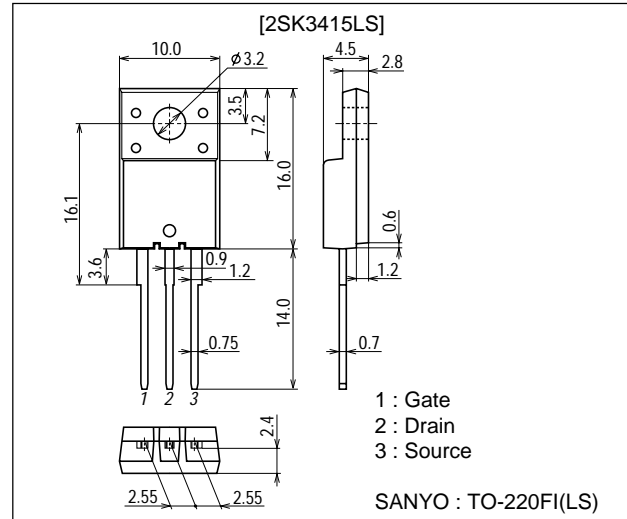
DC / DC Converter, Motor Driver Applications

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_{DSS}		60	V
Gate-to-Source Voltage	V_{GSS}		± 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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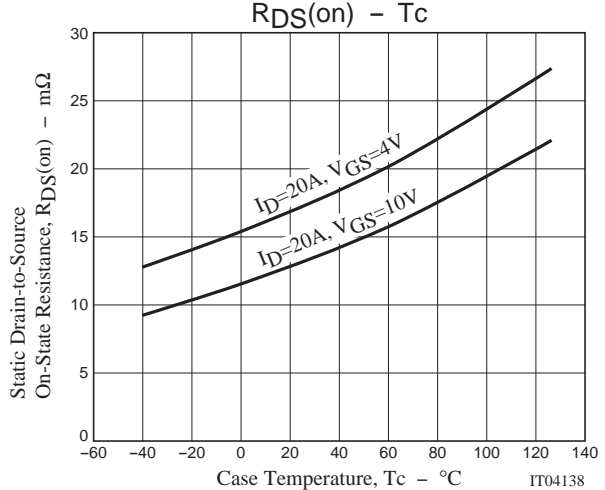
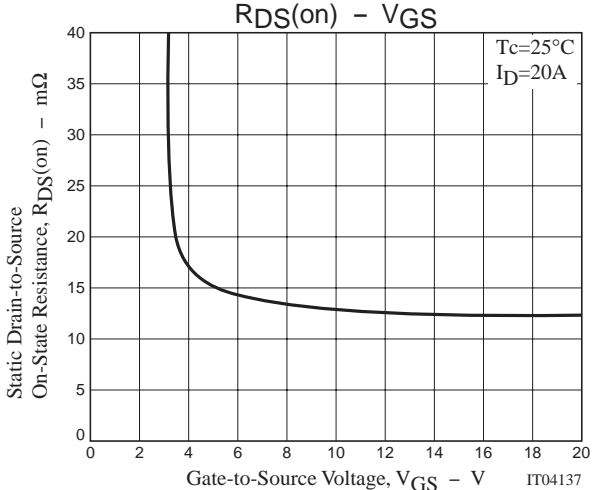
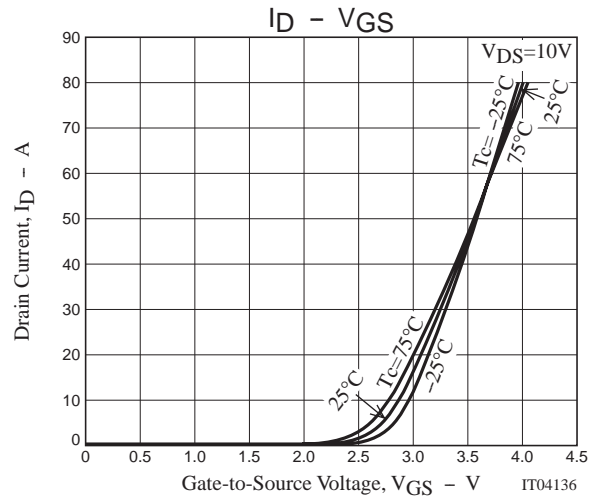
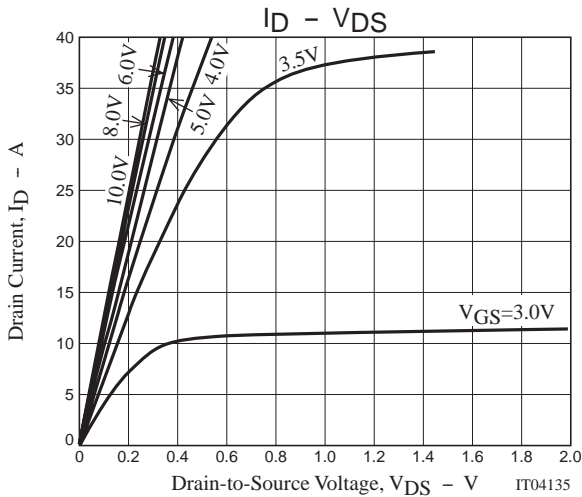
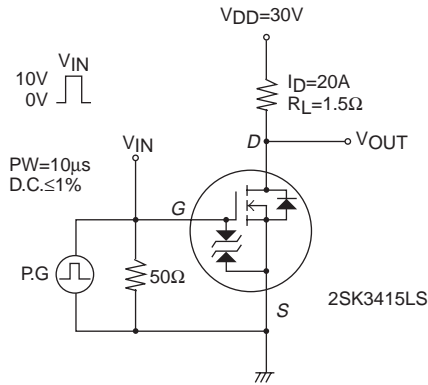
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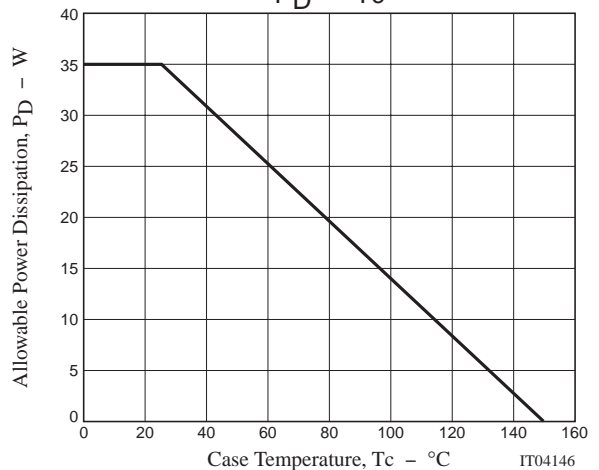
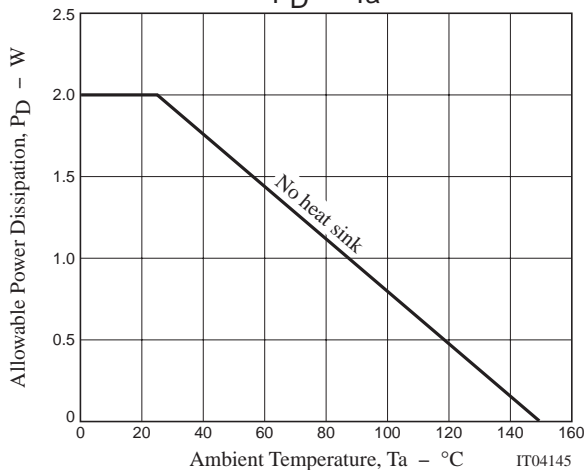
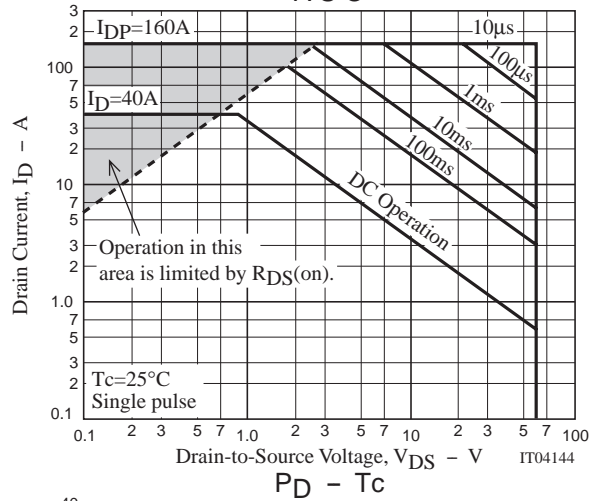
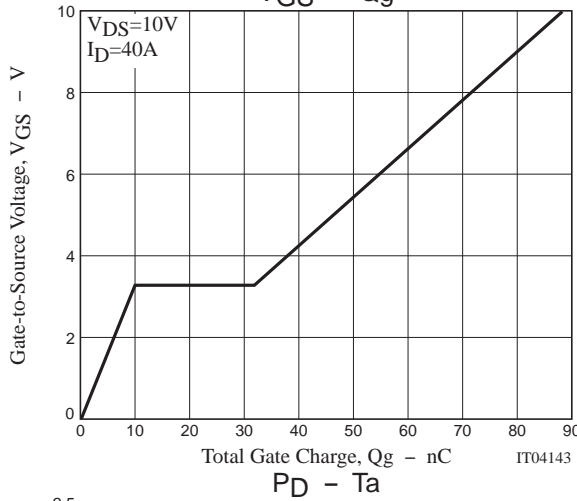
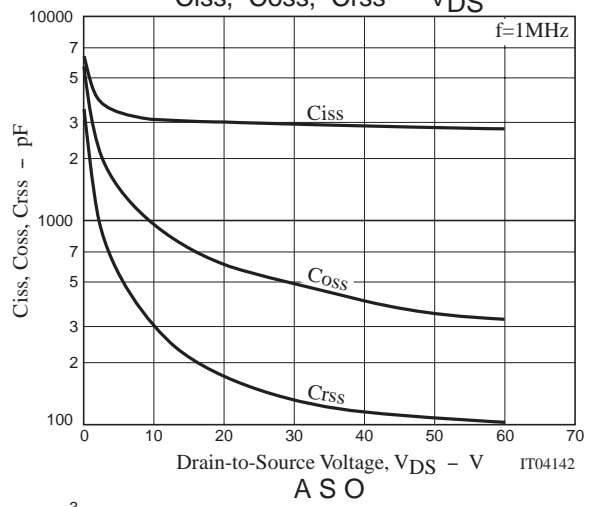
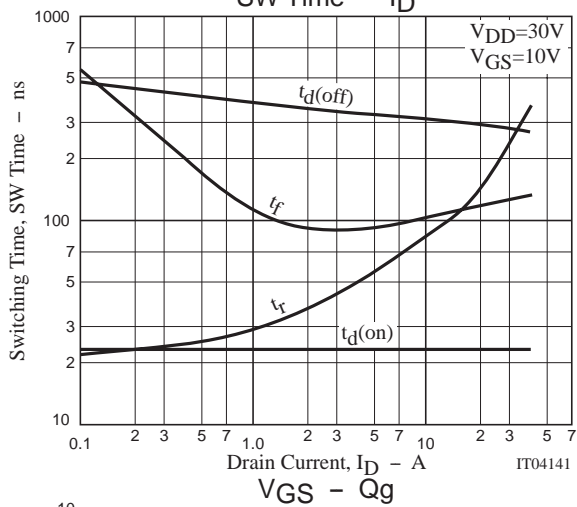
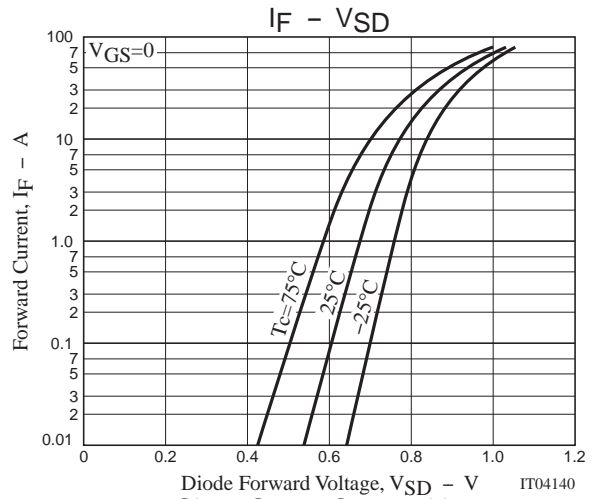
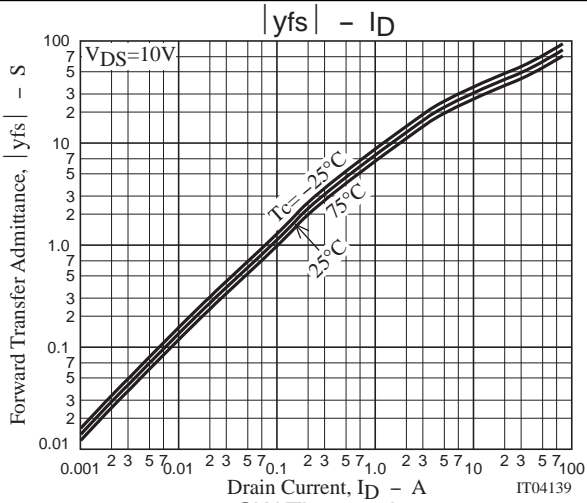
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	V _{DS} =20V, f=1MHz		3000		pF
Output Capacitance	Coss	V _{DS} =20V, f=1MHz		600		pF
Reverse Transfer Capacitance	Crss	V _{DS} =20V, f=1MHz		180		pF
Turn-ON Delay Time	t _{d(on)}	I _D =18A, V _{GS} =10V, V _{DD} =30V, R _{GS} =50Ω		23		ns
Rise Time	t _r	I _D =18A, V _{GS} =10V, V _{DD} =30V, R _{GS} =50Ω		140		ns
Turn-OFF Delay Time	t _{d(off)}	I _D =18A, V _{GS} =10V, V _{DD} =30V, R _{GS} =50Ω		290		ns
Fall Time	t _f	I _D =18A, V _{GS} =10V, V _{DD} =30V, R _{GS} =50Ω		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



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