



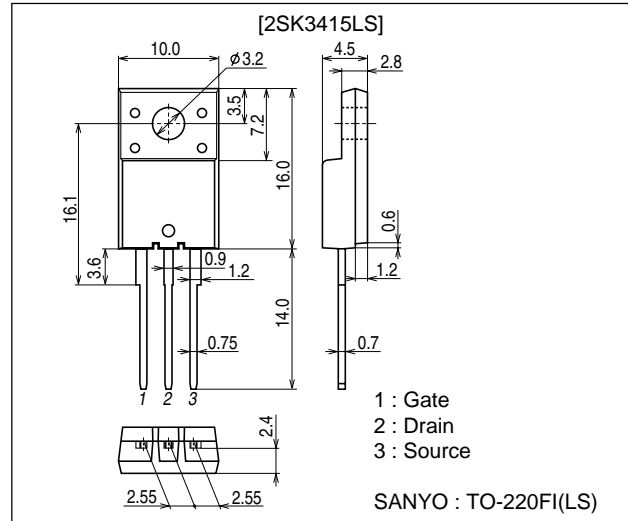
DC / DC Converter, Motor Driver Applications

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 _{DSS}		60	V
Gate-to-Source Voltage	V _{GSS}		±20	V
Drain Current (DC)	I _D		40	A
Drain Current (Pulse)	I _{DP}	PW≤10μs, duty cycle≤1%	160	A
Allowable Power Dissipation	P _D		2.0	W
		T _c =25°C	35	W
Channel Temperature	T _{ch}		150	°C
Storage Temperature	T _{stg}		-55 to +150	°C

Electrical Characteristics at Ta=25°C

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

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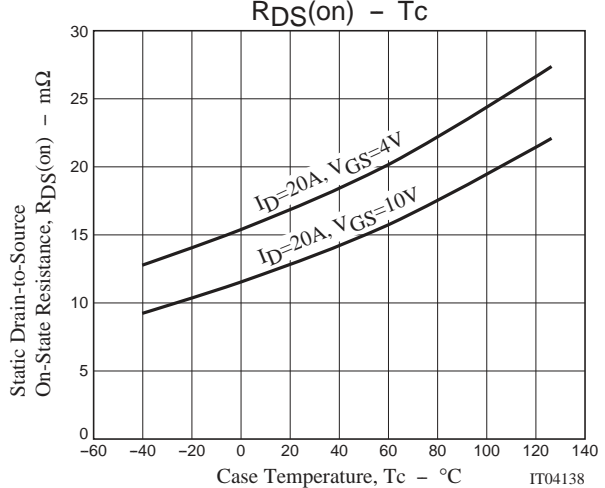
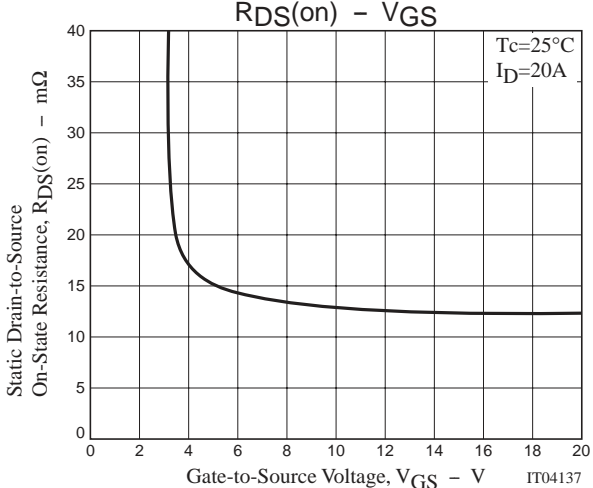
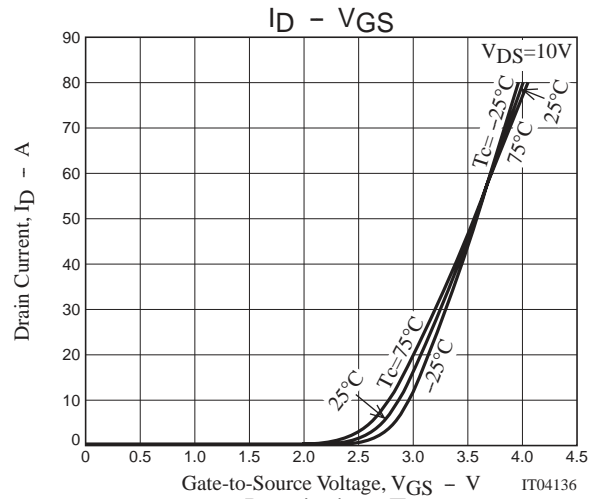
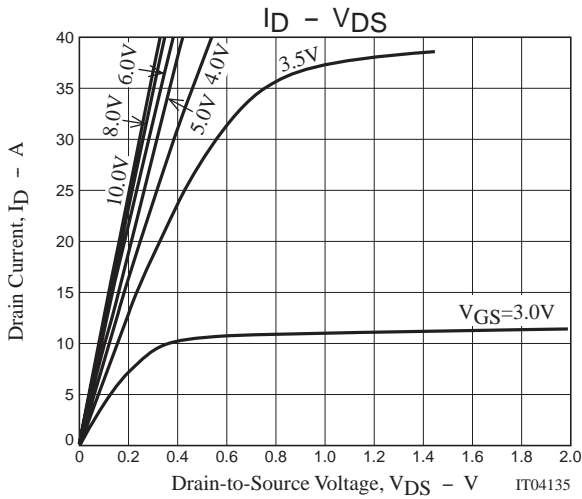
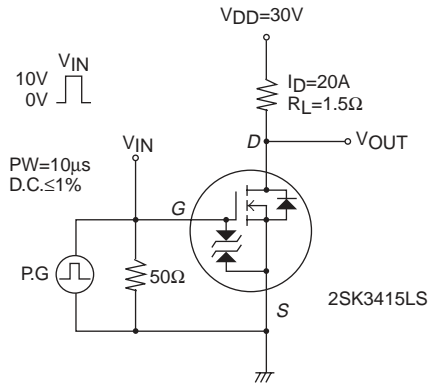
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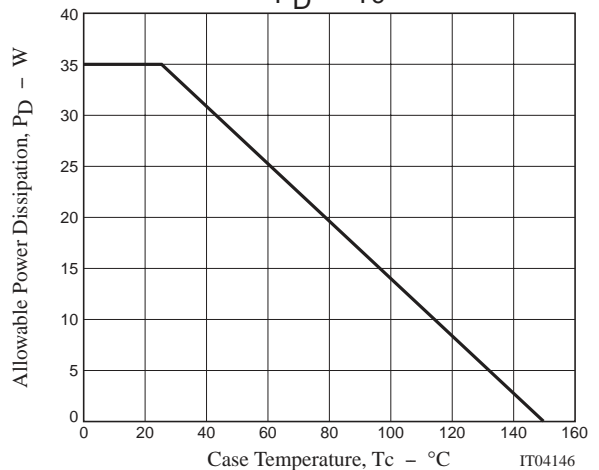
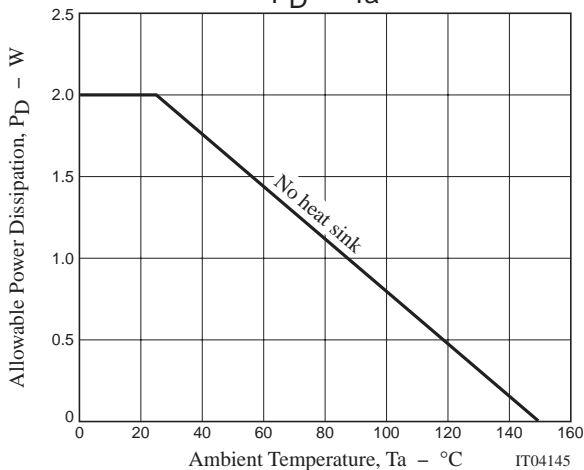
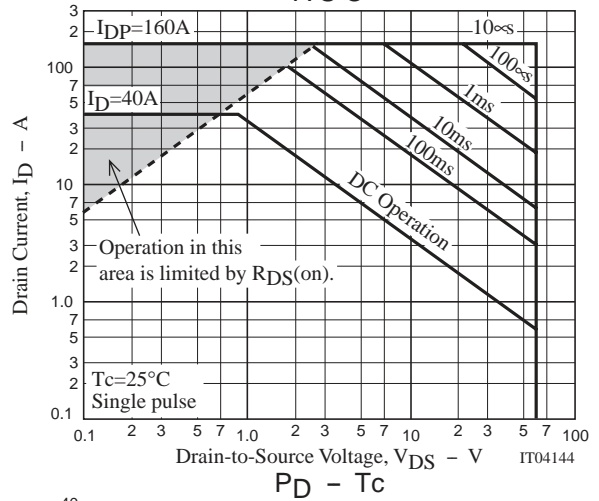
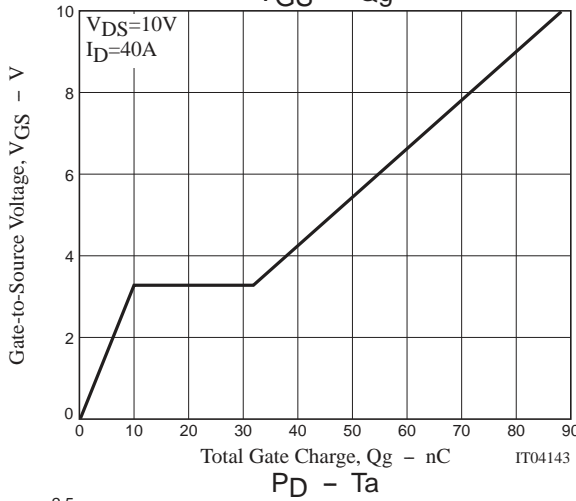
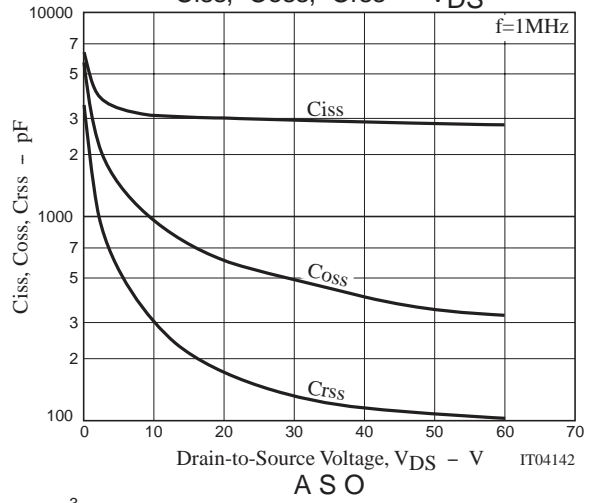
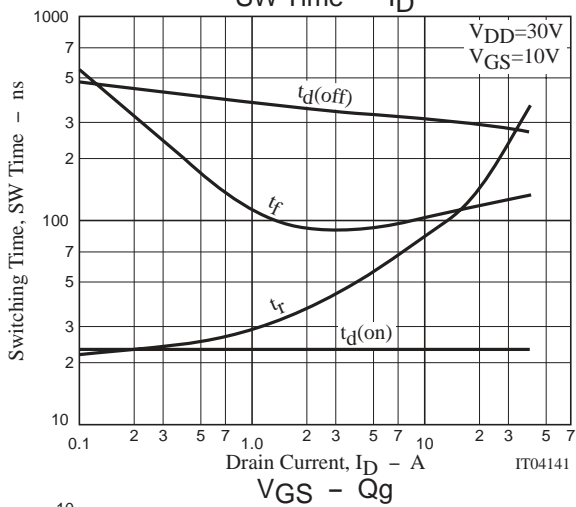
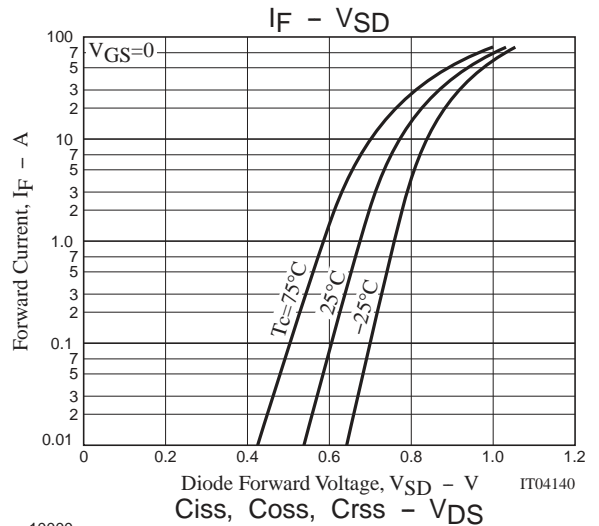
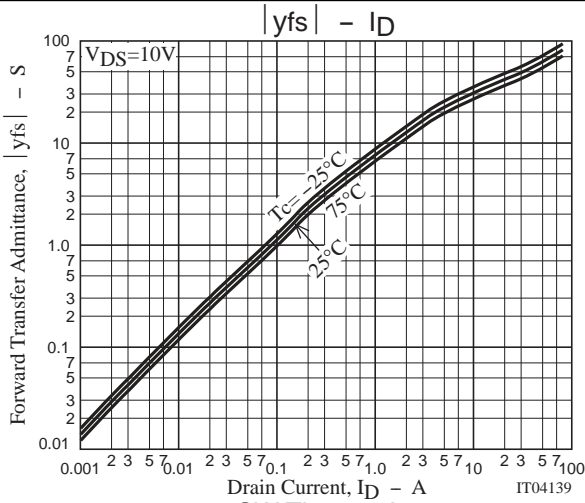
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	V _{DS} =20V, f=1MHz		3000		pF
Output Capacitance	Coss	V _{DS} =20V, f=1MHz		600		pF
Reverse Transfer Capacitance	Crss	V _{DS} =20V, f=1MHz		180		pF
Turn-ON Delay Time	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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