



2SK3815 — N-Channel Silicon MOSFET

General-Purpose Switching Device Applications

Features

- Low ON-resistance.
- Ultrahigh-speed switching.
- 4V drive.
- Motor drive, DC / DC converter.
- Avalanche resistance guarantee.

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		23	A
Drain Current (Pulse)	I _{DP}	PW≤10μs, duty cycle≤1%	92	A
Allowable Power Dissipation	P _D		1.65	W
		Tc=25°C	40	W
Channel Temperature	T _{ch}		150	°C
Storage Temperature	T _{stg}		-55 to +150	°C
Avalanche Energy (Single Pulse) *1	E _{AS}		19.8	mJ
Avalanche Current *2	I _{AV}		23	A

Note : *1 V_{DD}=20V, L=50μH, I_{AV}=23A

*2 L≤50μH, single pulse

Marking : K3815

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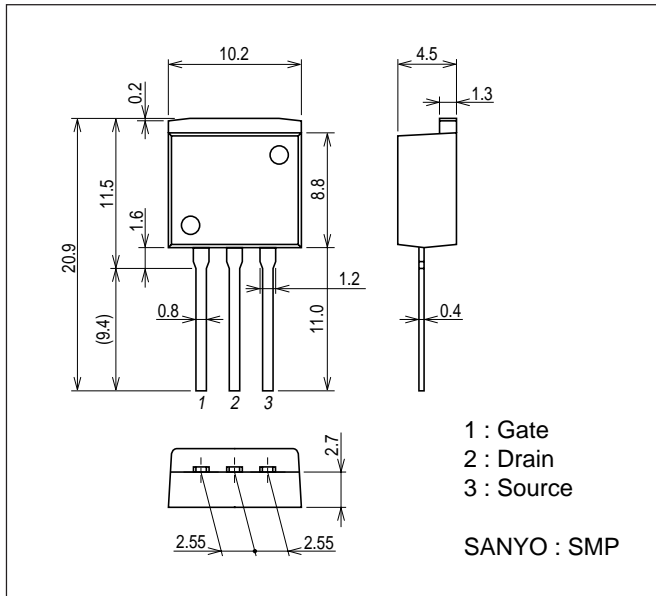
2SK3815

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=1mA, V_{GS}=0V$	60			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=60V, V_{GS}=0V$			1	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 16V, V_{DS}=0V$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10V, I_D=1mA$	1.2		2.6	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10V, I_D=12A$	9	15		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=12A, V_{GS}=10V$		42	55	$m\Omega$
	$R_{DS(on)2}$	$I_D=12A, V_{GS}=4V$		60	85	$m\Omega$
Input Capacitance	C_{iss}	$V_{DS}=20V, f=1MHz$		775		pF
Output Capacitance	C_{oss}	$V_{DS}=20V, f=1MHz$		125		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS}=20V, f=1MHz$		105		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		11		ns
Rise Time	t_r	See specified Test Circuit.		85		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		72		ns
Fall Time	t_f	See specified Test Circuit.		78		ns
Total Gate Charge	Q_g	$V_{DS}=30V, V_{GS}=10V, I_D=23A$		19		nC
Gate-to-Source Charge	Q_{gs}	$V_{DS}=30V, V_{GS}=10V, I_D=23A$		2.5		nC
Gate-to-Drain "Miller" Charge	Q_{gd}	$V_{DS}=30V, V_{GS}=10V, I_D=23A$		4.1		nC
Diode Forward Voltage	V_{SD}	$I_S=23A, V_{GS}=0V$		1.04	1.5	V

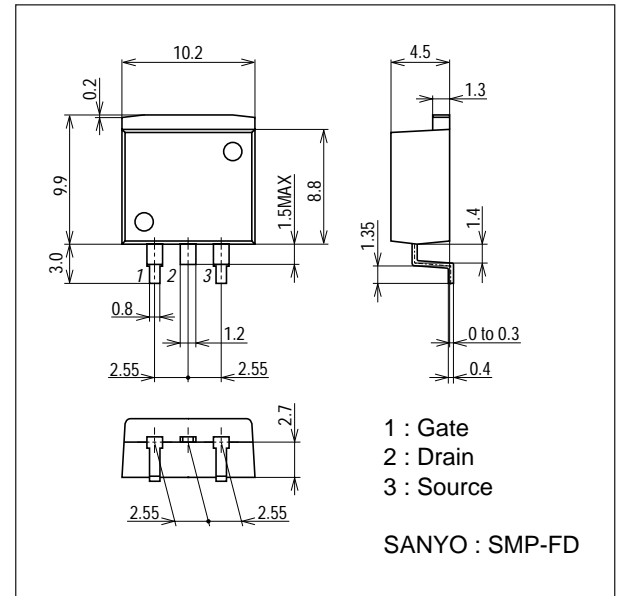
Package Dimensions

unit : mm (typ)
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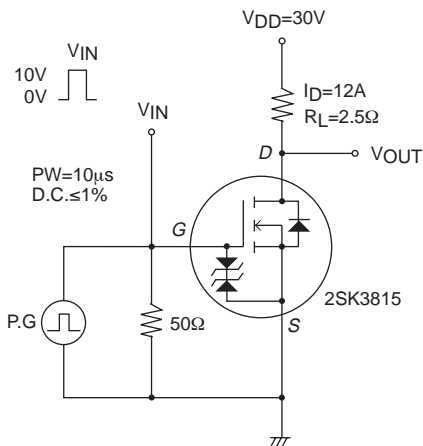


Package Dimensions

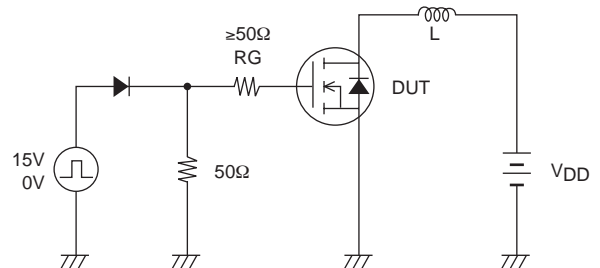
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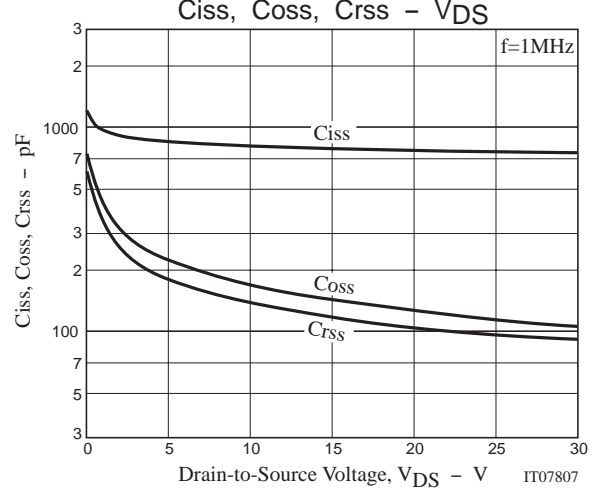
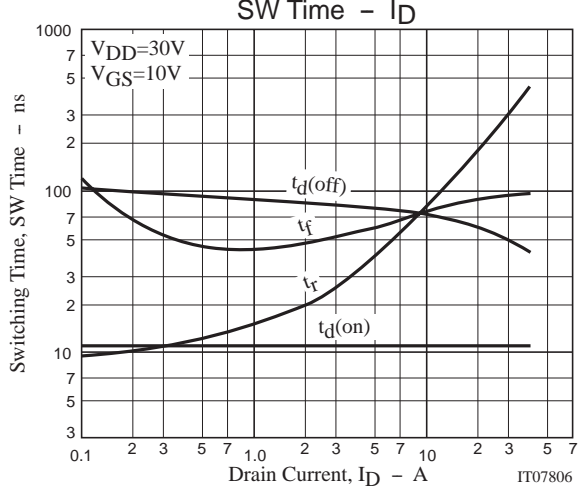
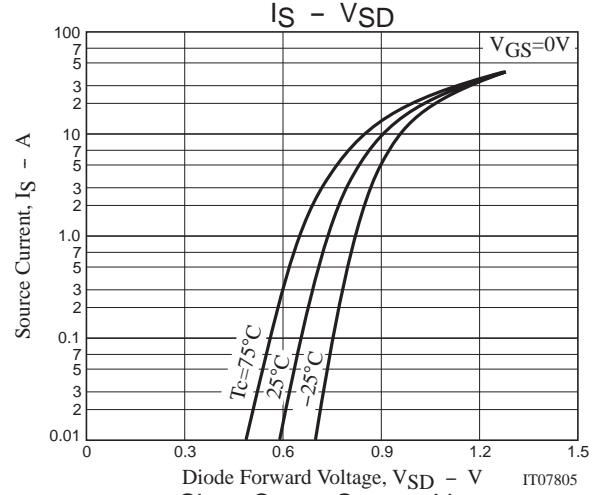
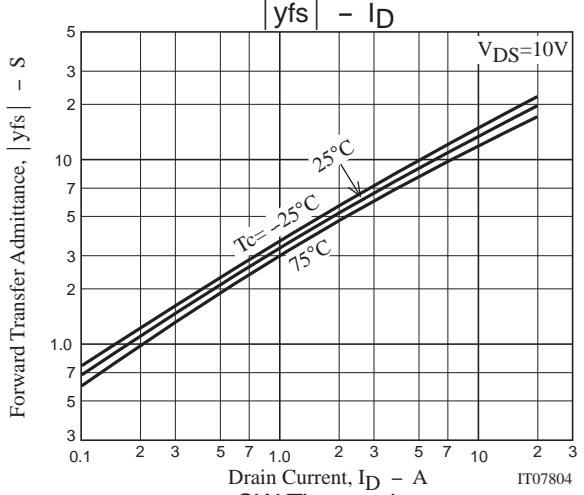
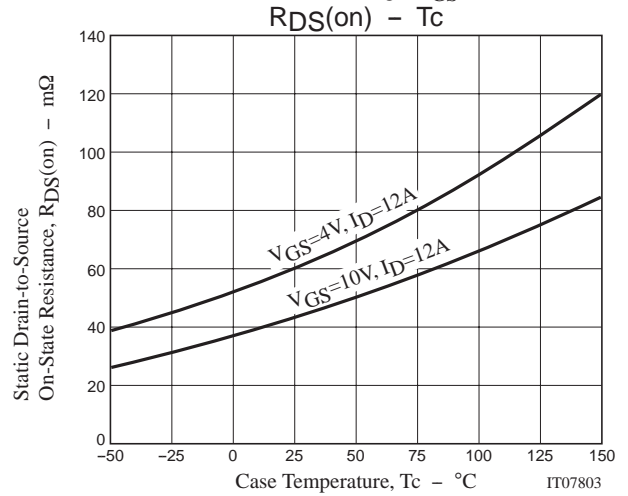
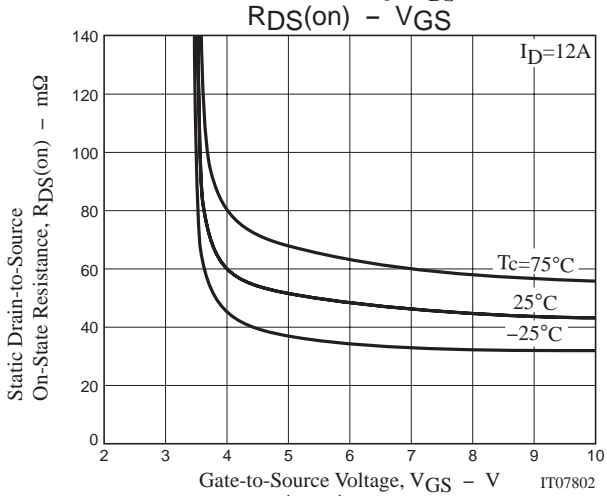
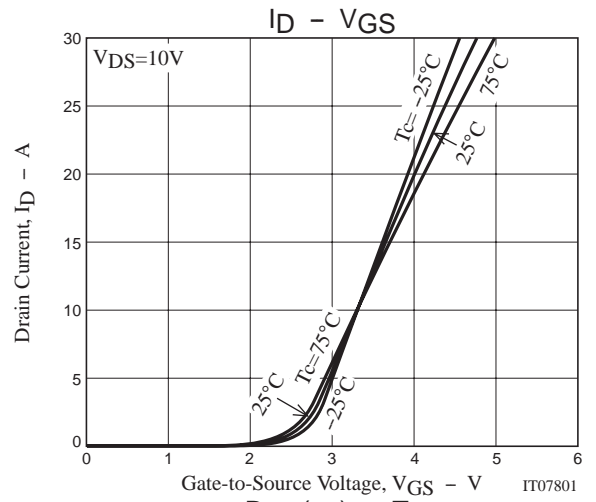
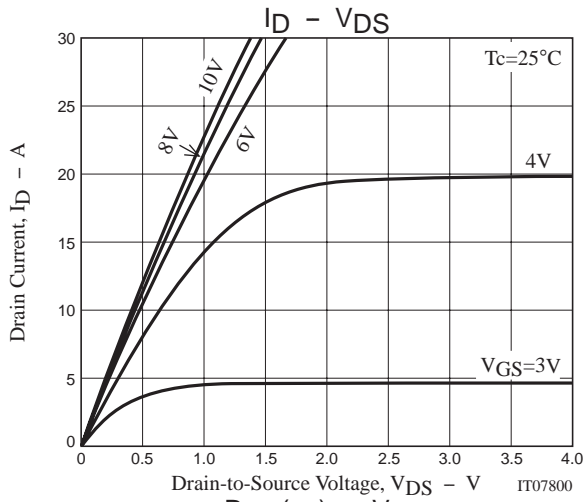
Switching Time Test Circuit

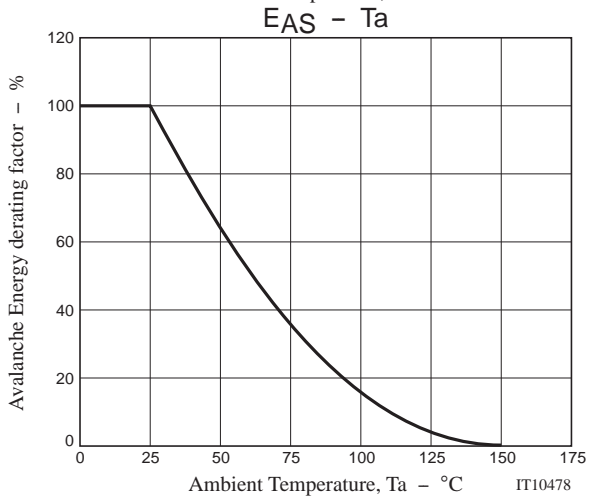
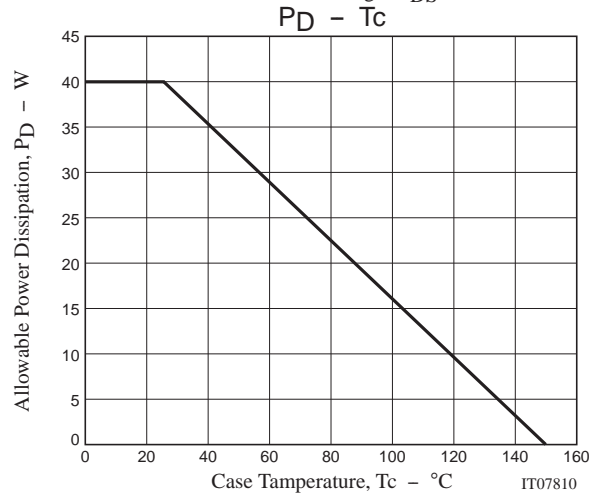
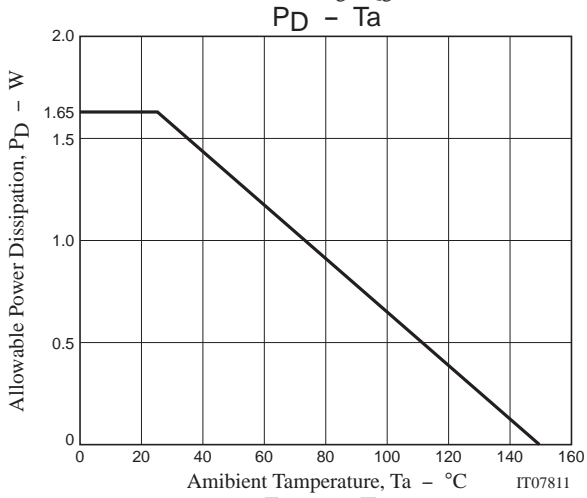
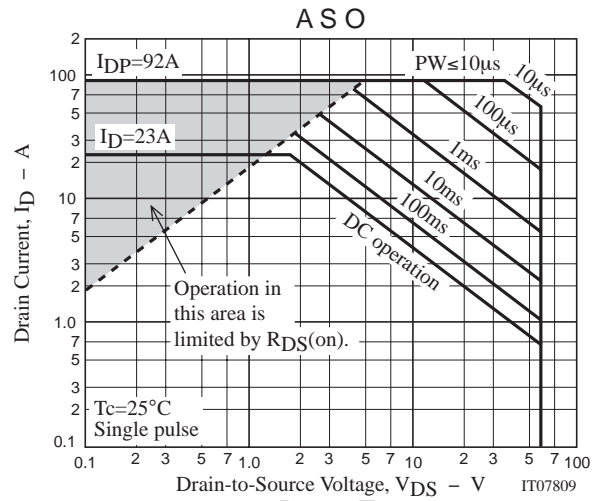
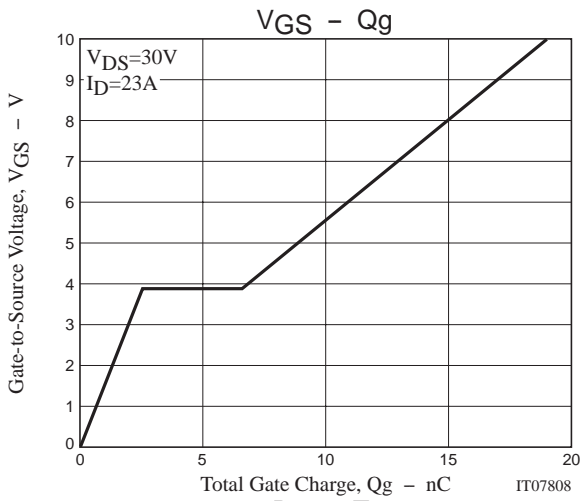


Unclamped Inductive Test Circuit



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Note on usage : Since the 2SK3815 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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