



2SK3820

N-Channel Power MOSFET

100V, 26A, 60mΩ, TO-263-2L

ON Semiconductor®

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Features

- ON-resistance $R_{DS(on)1}=45\text{m}\Omega(\text{typ.})$
- Input capacitance $C_{iss}=2150\text{pF}(\text{typ.})$
- 4V drive

Specifications

Absolute Maximum Ratings at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DS}		100	V
Gate-to-Source Voltage	V_{GS}		± 20	V
Drain Current (DC)	I_D		26	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu\text{s}$, duty cycle $\leq 1\%$	104	A
Allowable Power Dissipation	P_D		1.65	W
		$T_c=25^\circ\text{C}$	50	W
Channel Temperature	T_{ch}		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$
Avalanche Energy (Single Pulse) *1	E_{AS}		84.5	mJ
Avalanche Current *2	I_{AV}		26	A

Note : *1 $V_{DD}=20\text{V}$, $L=200\mu\text{H}$, $I_{AV}=26\text{A}$ (Fig.1)

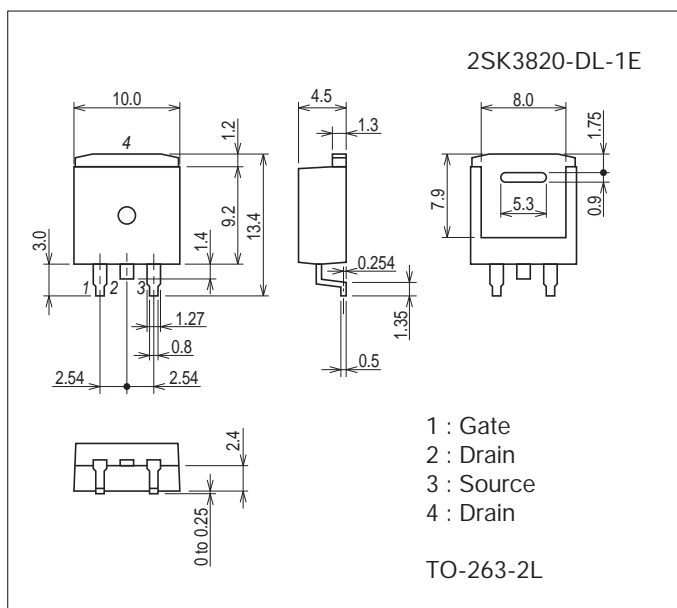
*2 $L \leq 200\mu\text{H}$, single pulse

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

Package Dimensions

unit : mm (typ)

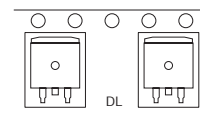
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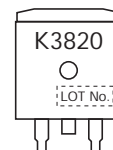
Ordering & Package Information

Device	Package	Shipping	memo
2SK3820-DL-1E	TO-263-2L (SC-83, TO-263)	800pcs./reel	Pb Free

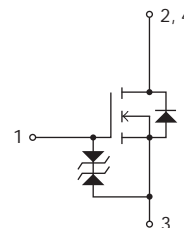
Packing Type: DL



Marking



Electrical Connection



Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=1mA, V_{GS}=0V$	100			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=100V, V_{GS}=0V$			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} $	$V_{DS}=10V, I_D=13A$	11	19		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=13A, V_{GS}=10V$		45	60	$m\Omega$
	$R_{DS(on)2}$	$I_D=13A, V_{GS}=4V$		56	80	$m\Omega$
Input Capacitance	C_{iss}	$V_{DS}=20V, f=1MHz$		2150		pF
Output Capacitance	C_{oss}			160		pF
Reverse Transfer Capacitance	C_{rss}			110		pF
Turn-ON Delay Time	$t_d(on)$	See Fig.2		20		ns
Rise Time	t_r			34		ns
Turn-OFF Delay Time	$t_d(off)$			185		ns
Fall Time	t_f			62		ns
Total Gate Charge	Q_g	$V_{DS}=50V, V_{GS}=10V, I_D=26A$		44		nC
Gate-to-Source Charge	Q_{gs}			7.8		nC
Gate-to-Drain "Miller" Charge	Q_{gd}			9.8		nC
Diode Forward Voltage	V_{SD}	$I_S=26A, V_{GS}=0V$		1.0	1.2	V

Fig.1 Unclamped Inductive Switching Test Circuit

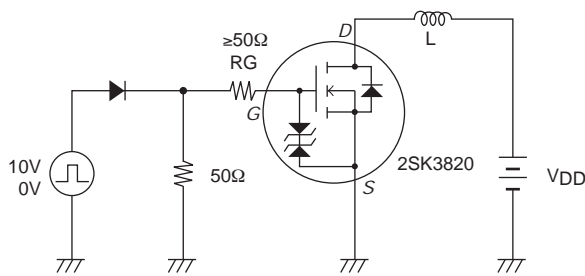
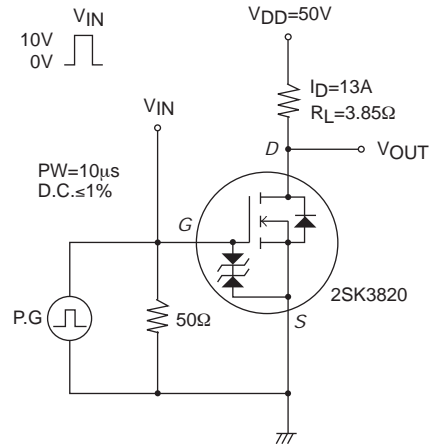
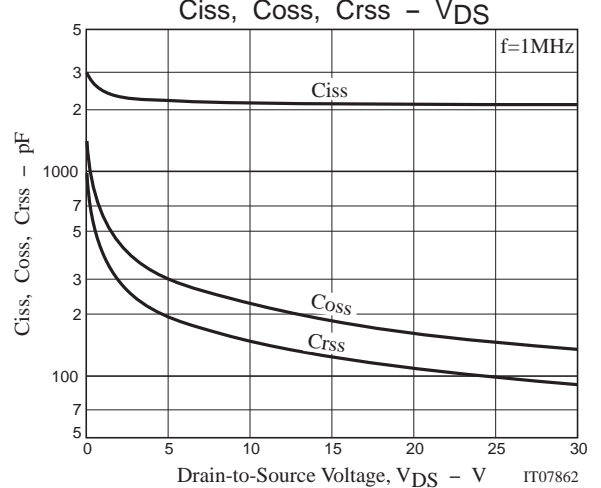
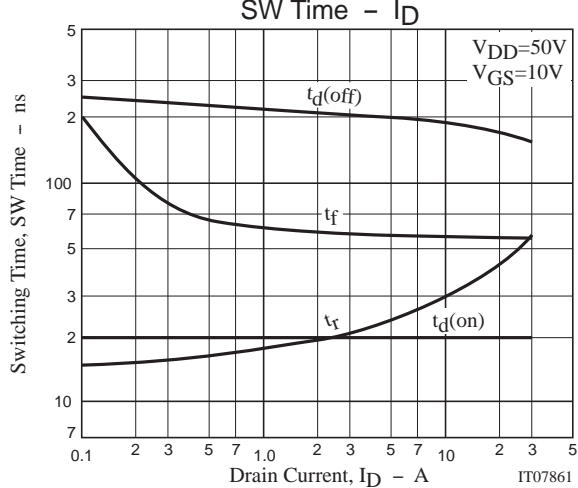
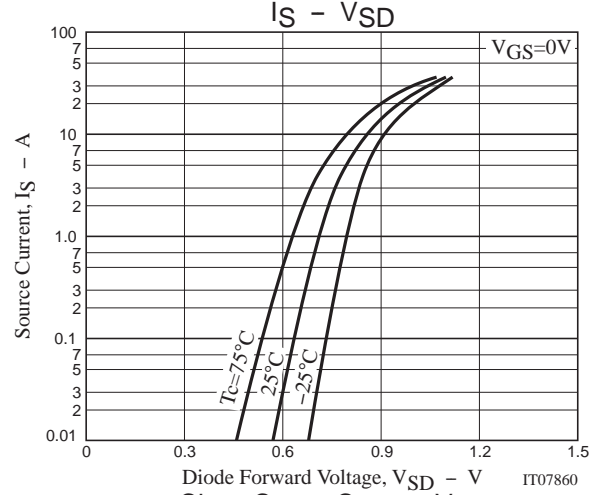
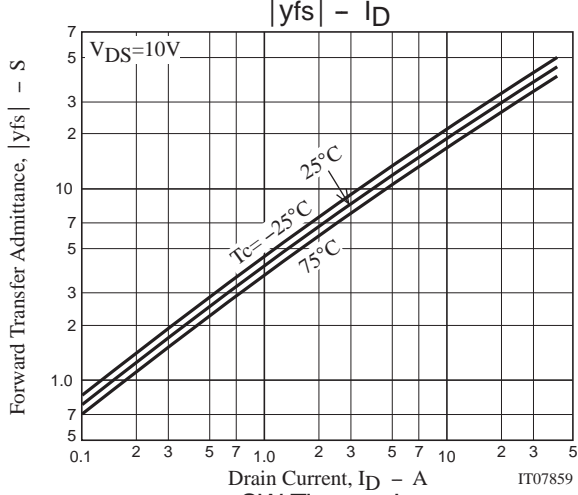
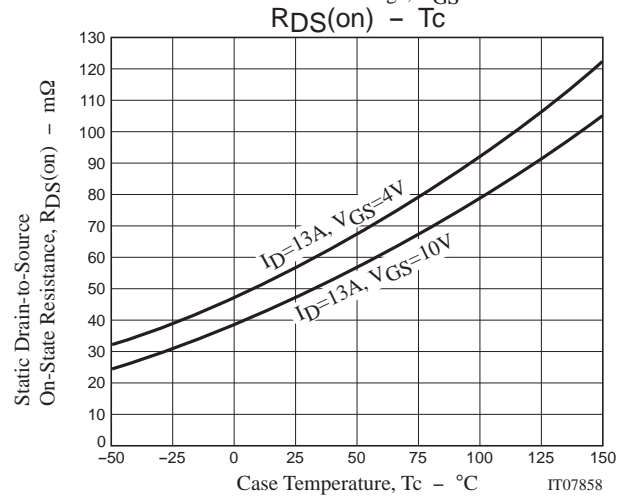
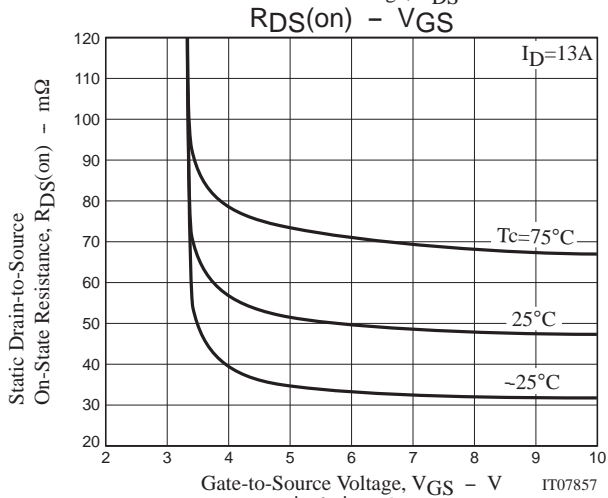
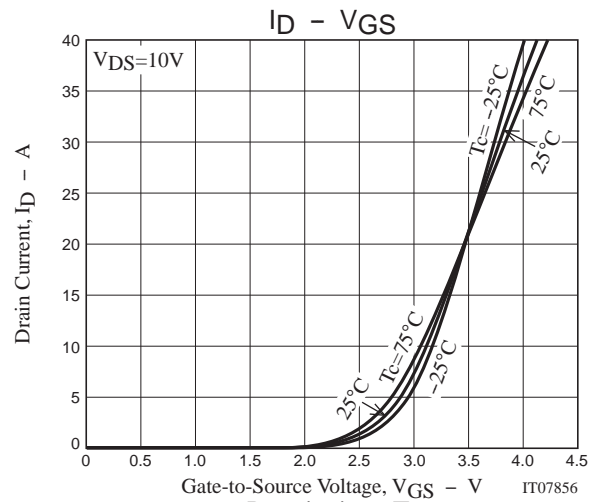
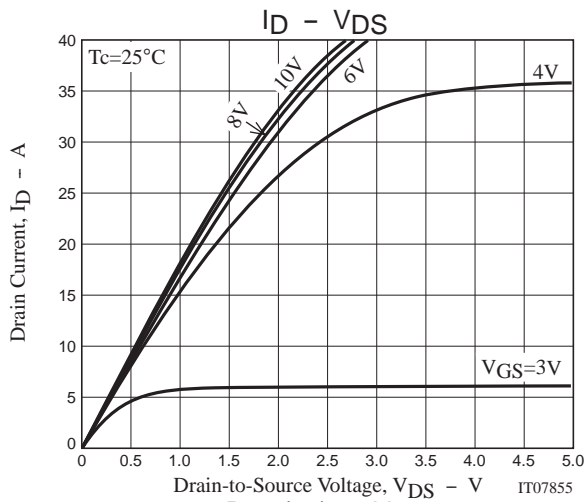
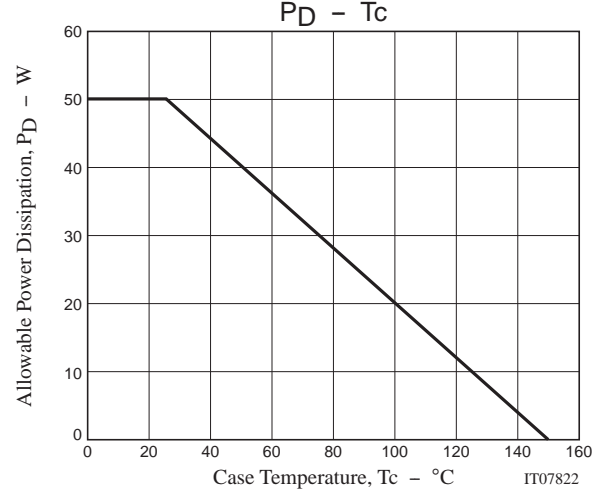
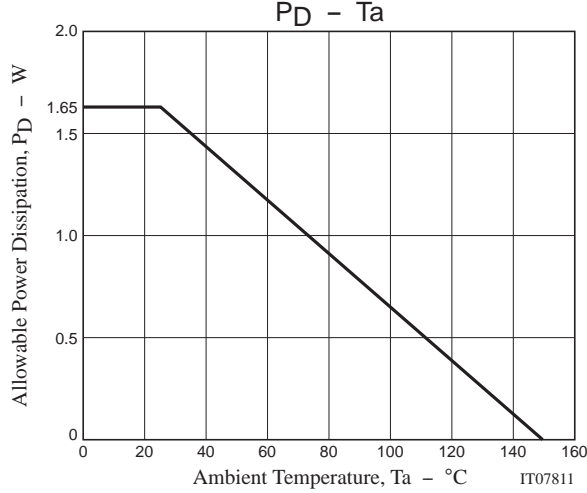
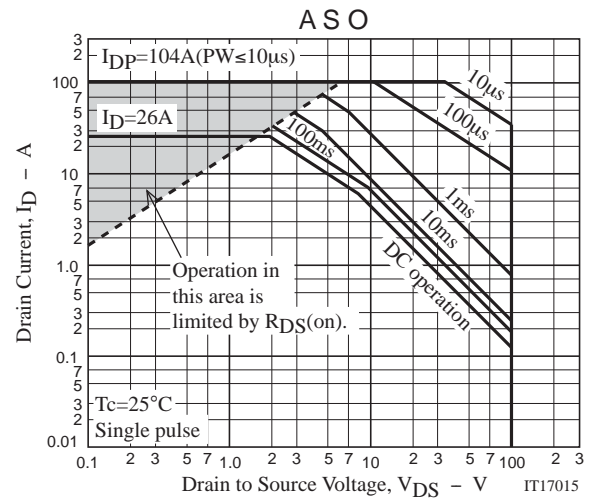
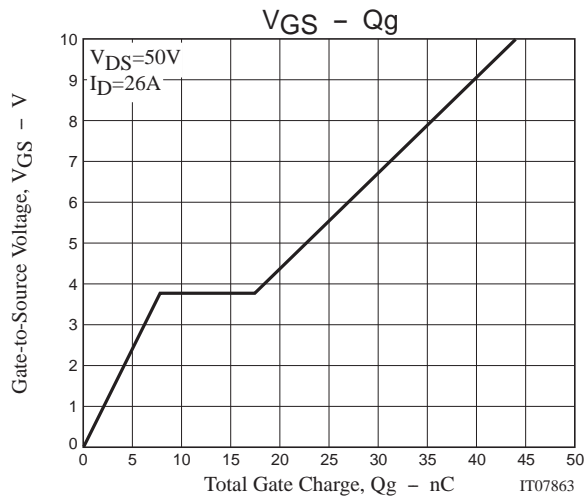


Fig.2 Switching Time Test Circuit

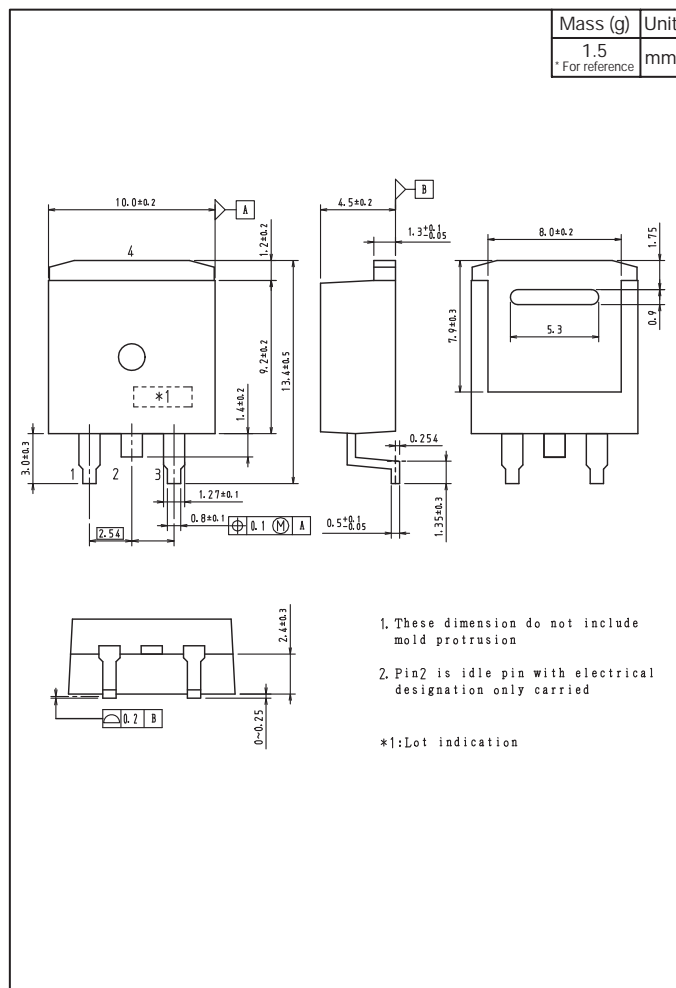




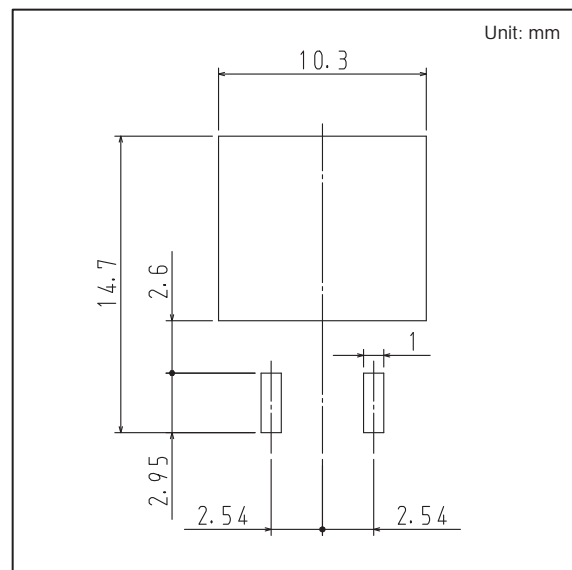


Outline Drawing

2SK3820-DL-1E



Land Pattern Example



Note on usage : Since the 2SK3820 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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