



# 2SK3820

## N-Channel Power MOSFET 100V, 26A, 60mΩ, TO-263-2L

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### Features

- ON-resistance  $R_{DS(on)} = 45\text{m}\Omega$  (typ.)
- Input capacitance  $C_{iss} = 2150\text{pF}$  (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	$V_{GS}$		$\pm 20$	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	PD		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

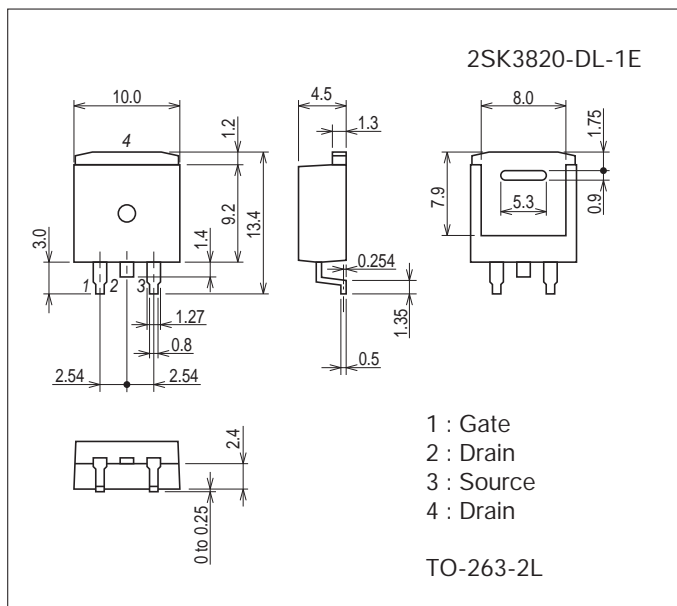
Note : \*1  $V_{DD} = 20\text{V}$ ,  $L = 200\mu\text{H}$ ,  $I_{AV} = 26\text{A}$  (Fig.1)\*2  $L \leq 200\mu\text{H}$ , single pulse

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)

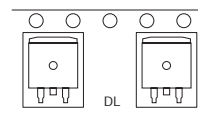
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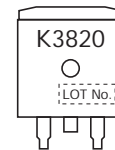
### Ordering & Package Information

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

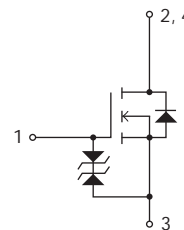
### Packing Type: DL



### 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	ID=1mA, VGS=0V	100			V
Zero-Gate Voltage Drain Current	IDSS	VDS=100V, VGS=0V			1	μA
Gate-to-Source Leakage Current	IGSS	VGS=±16V, VDS=0V			±10	μA
Cutoff Voltage	VGS(off)	VDS=10V, ID=1mA	1.2		2.6	V
Forward Transfer Admittance	yfs	VDS=10V, ID=13A	11	19		S
Static Drain-to-Source On-State Resistance	RDS(on)1	ID=13A, VGS=10V		45	60	mΩ
	RDS(on)2	ID=13A, VGS=4V		56	80	mΩ
Input Capacitance	Ciss	VDS=20V, f=1MHz		2150		pF
Output Capacitance	Coss			160		pF
Reverse Transfer Capacitance	Crss			110		pF
Turn-ON Delay Time	td(on)	See Fig.2		20		ns
Rise Time	tr			34		ns
Turn-OFF Delay Time	td(off)			185		ns
Fall Time	tf			62		ns
Total Gate Charge	Qg	VDS=50V, VGS=10V, ID=26A		44		nC
Gate-to-Source Charge	Qgs			7.8		nC
Gate-to-Drain "Miller" Charge	Qgd			9.8		nC
Diode Forward Voltage	VSD	IS=26A, VGS=0V		1.0	1.2	V

Fig.1 Unclamped Inductive Switching Test Circuit

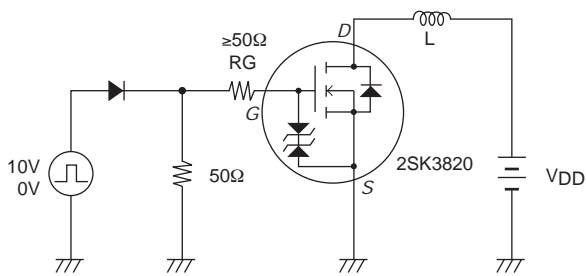
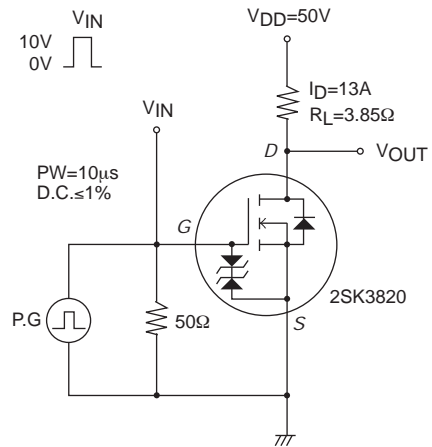
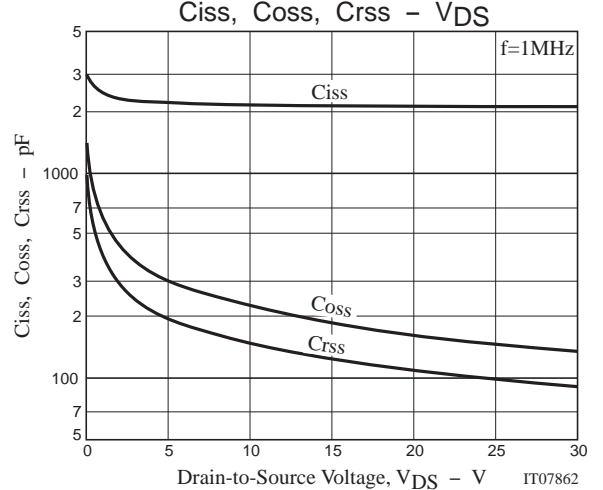
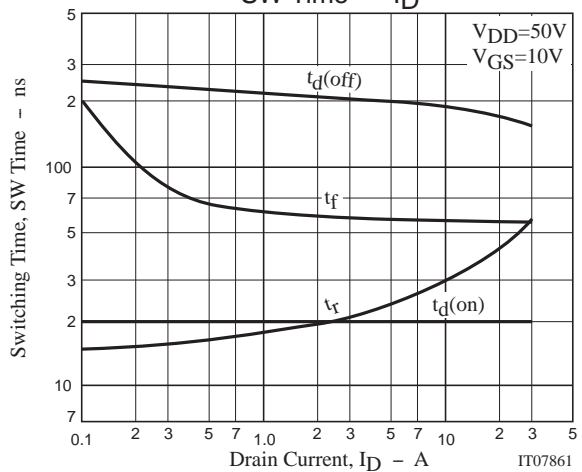
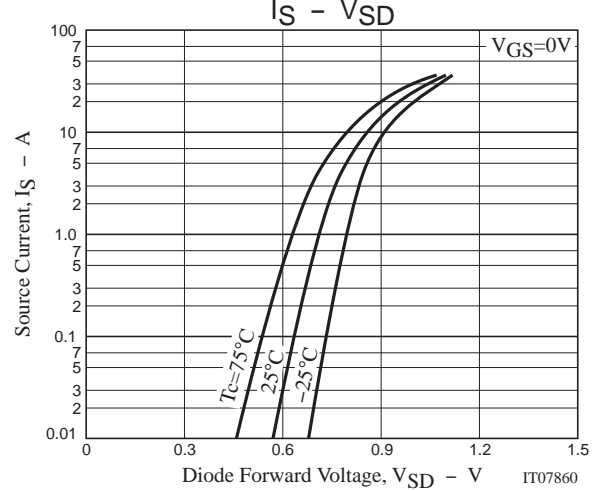
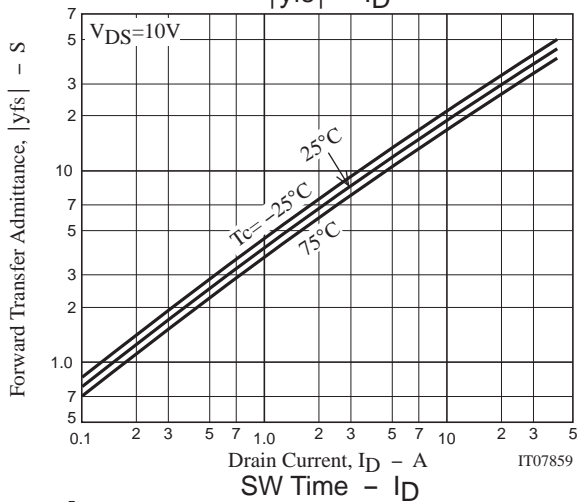
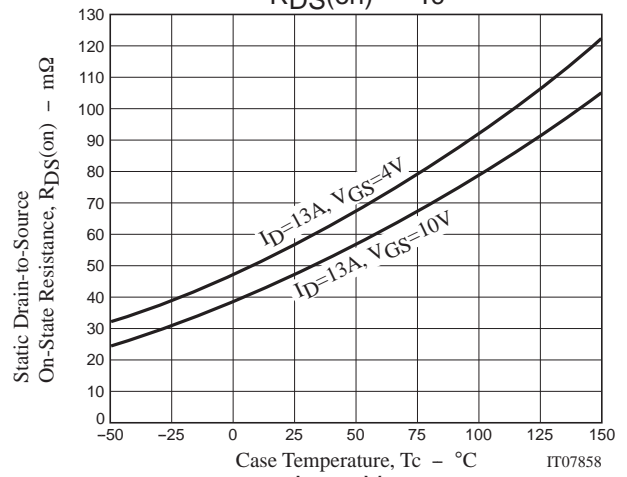
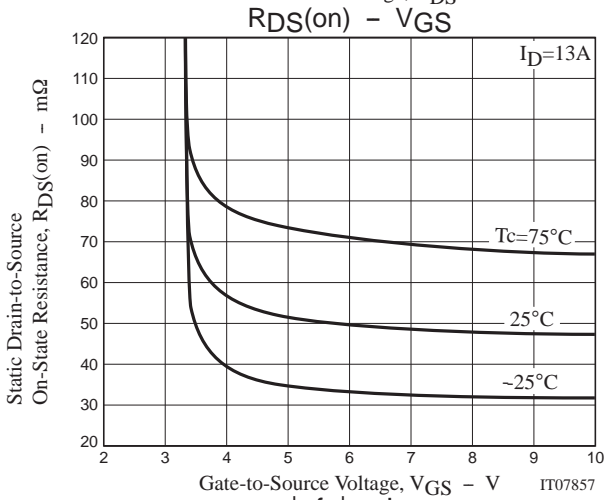
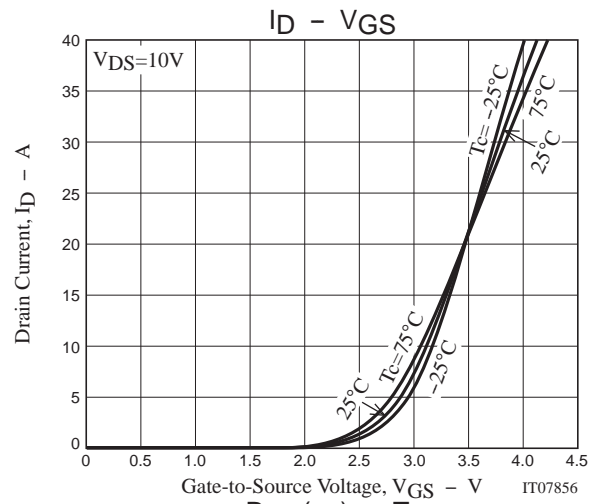
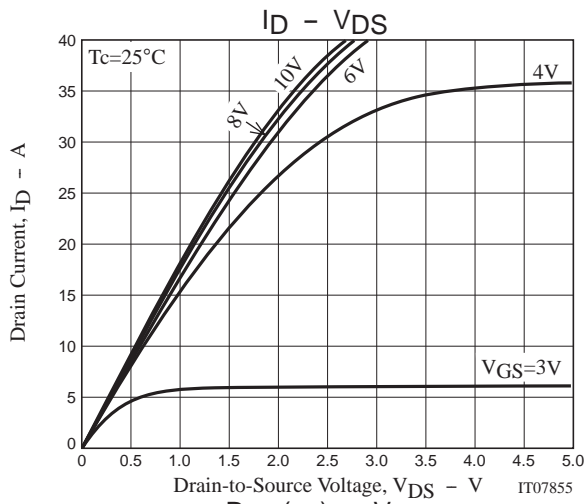
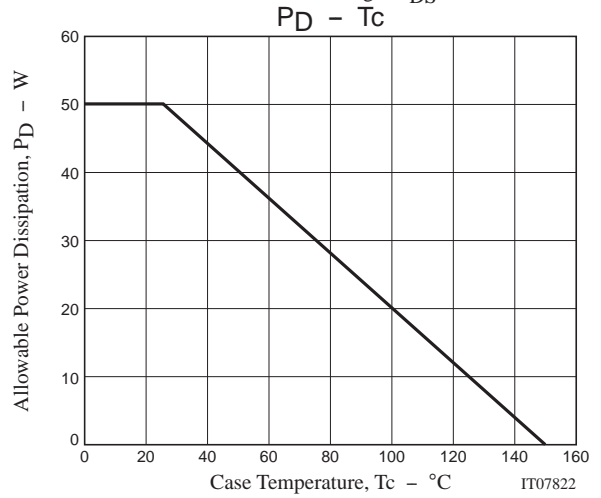
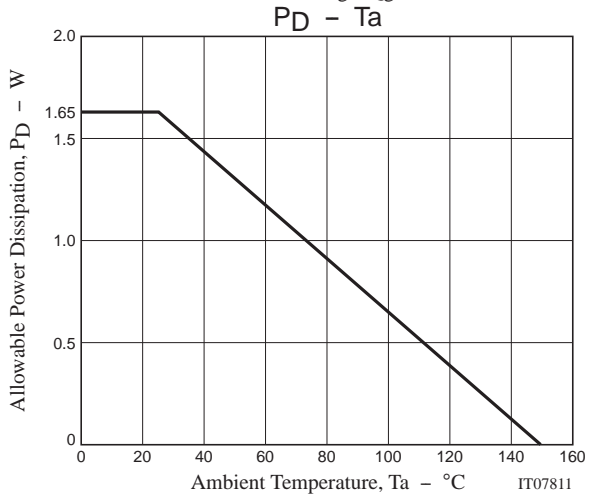
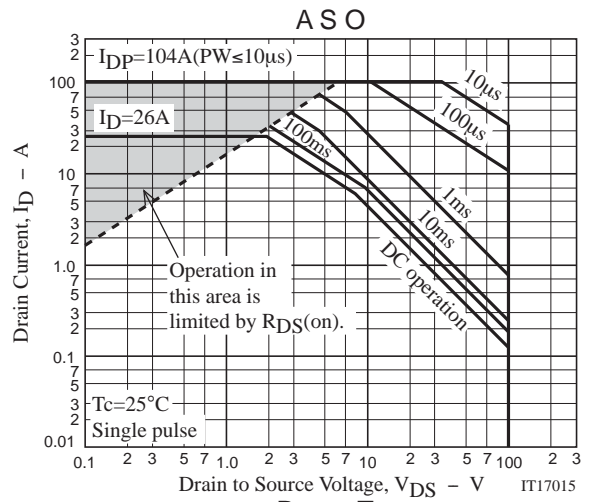
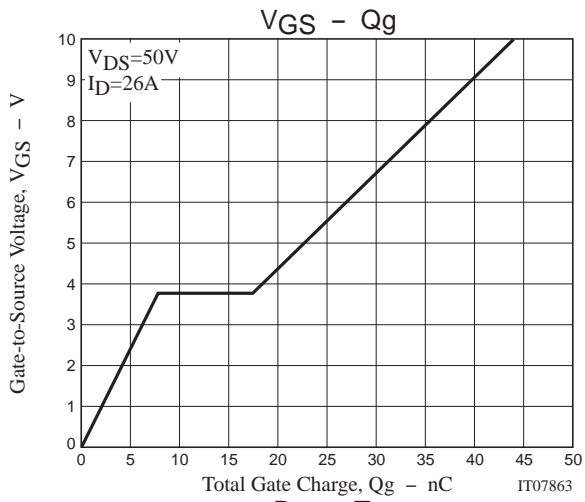


Fig.2 Switching Time Test Circuit

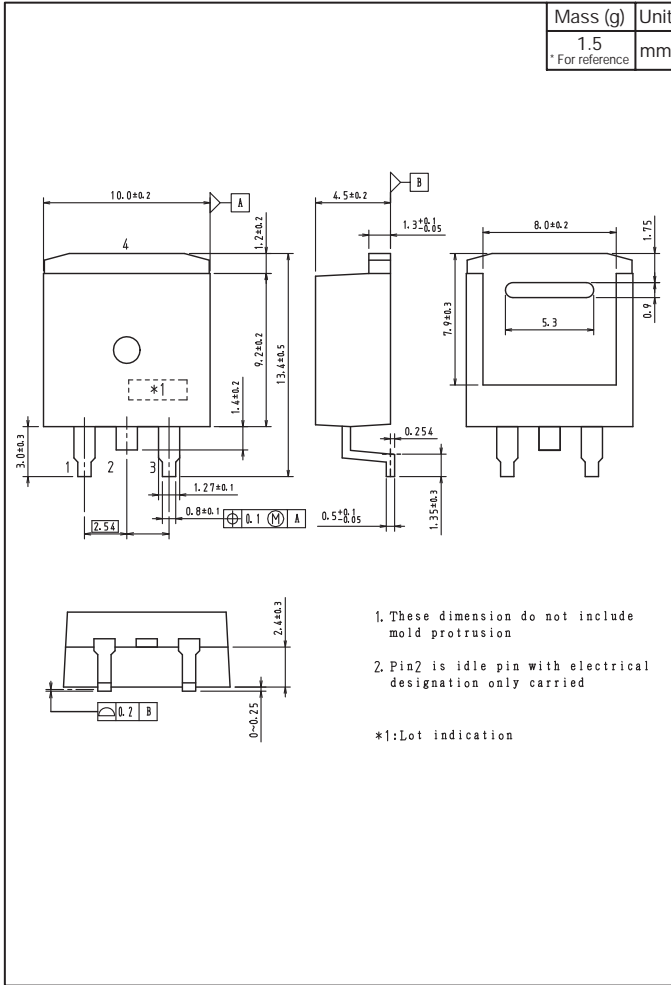




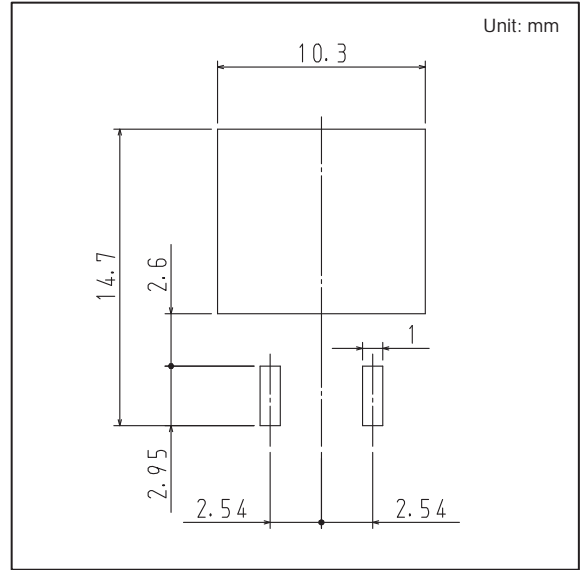


# 2SK3820

## 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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