



## Ultrahigh-Speed Switching Applications

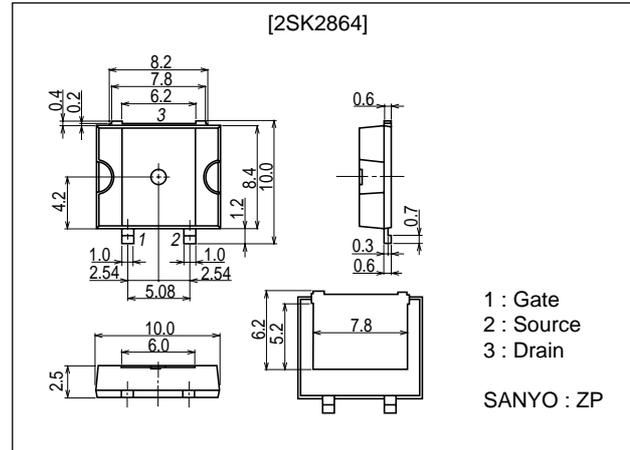
### Features

- Low ON-resistance.
- Ultrahigh-speed switching.
- Enables simplified fabrication, high-density mounting, and miniaturization in end products due to the surface mountable package.

### Package Dimensions

unit : mm

2128



### Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	$V_{DSS}$		200	V
Gate-to-Source Voltage	$V_{GSS}$		$\pm 20$	V
Drain Current (DC)	$I_D$		20	A
Drain Current (Pulse)	$I_{DP}$	$PW \leq 10\mu\text{s}$ , duty cycle $\leq 1\%$	80	A
Allowable Power Dissipation	$P_D$	$T_c=25^\circ\text{C}$	50	W
Channel Temperature	$T_{ch}$		150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$		-55 to +150	$^\circ\text{C}$

Electrical Characteristics at  $T_a=25^\circ\text{C}$ 

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=1\text{mA}$ , $V_{GS}=0$	200			V
Gate-to-Source Breakdown Voltage	$V_{(BR)GSS}$	$I_G=\pm 100\mu\text{A}$ , $V_{DS}=0$	$\pm 20$			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=200\text{V}$ , $V_{GS}=0$			100	$\mu\text{A}$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 16\text{V}$ , $V_{DS}=0$			$\pm 10$	$\mu\text{A}$
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10\text{V}$ , $I_D=1\text{mA}$	2.0		4.0	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10\text{V}$ , $I_D=10\text{A}$	6	10		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)}$	$I_D=10\text{A}$ , $V_{GS}=10\text{V}$		90	120	$\text{m}\Omega$

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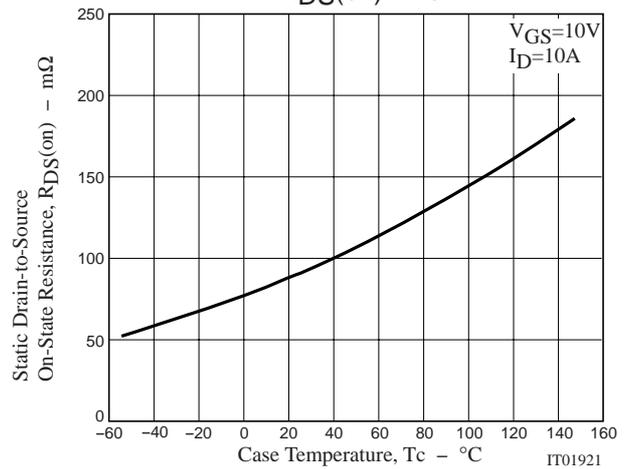
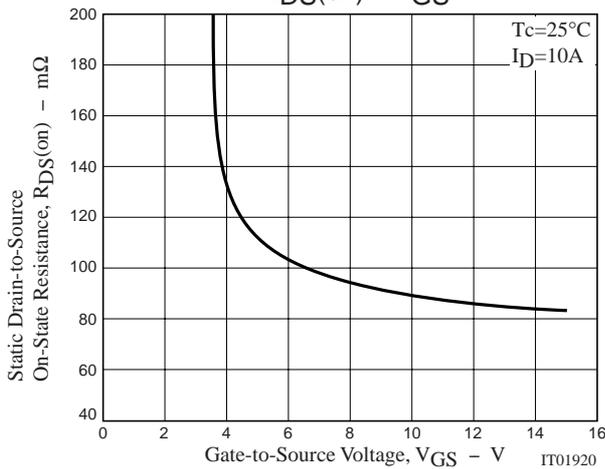
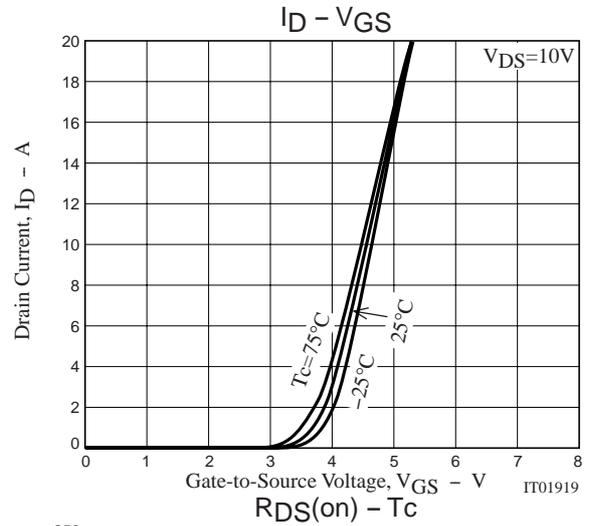
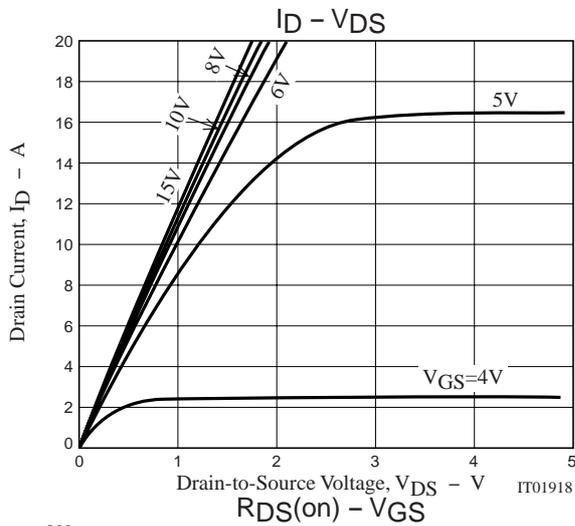
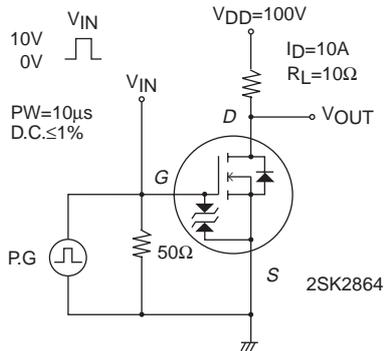
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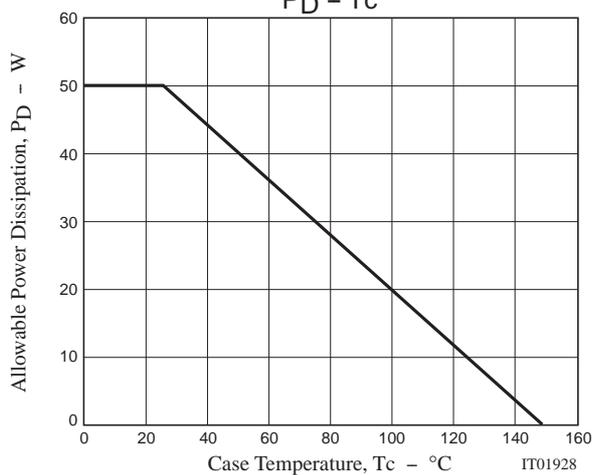
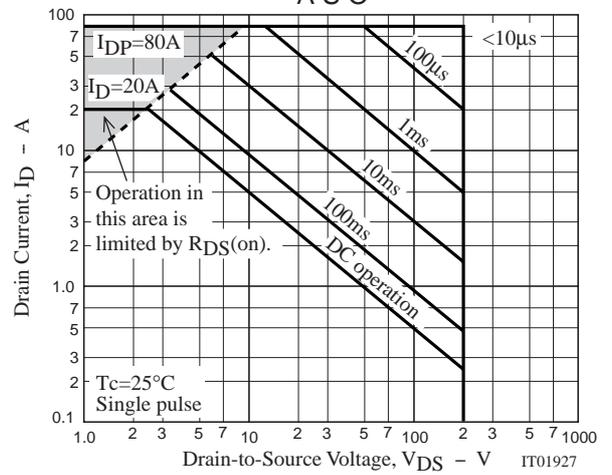
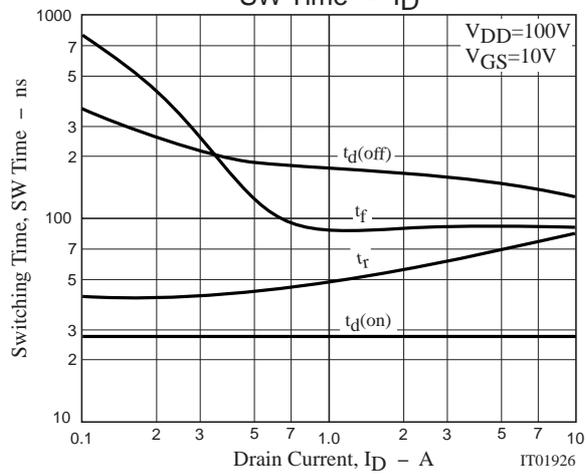
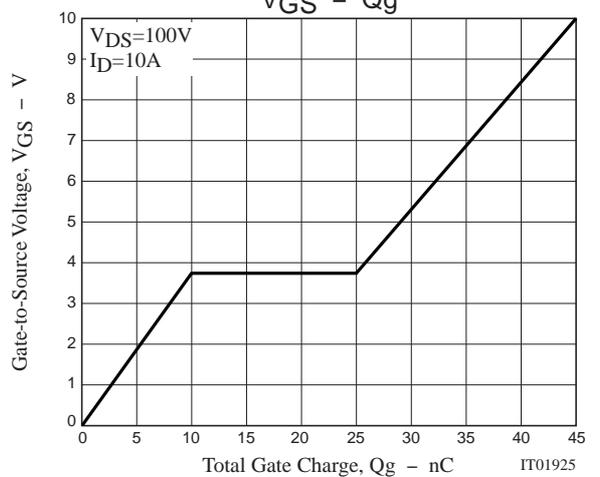
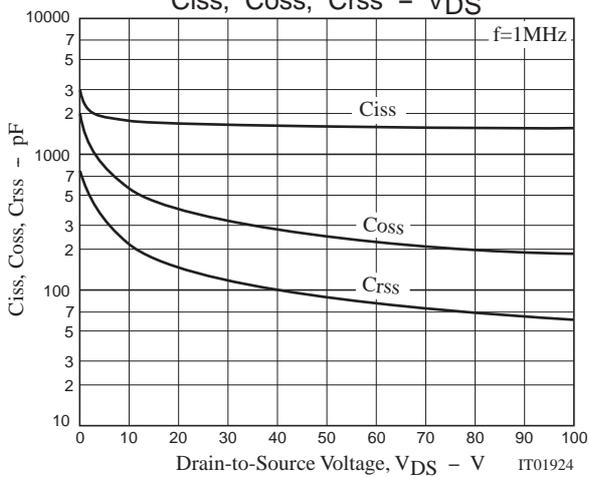
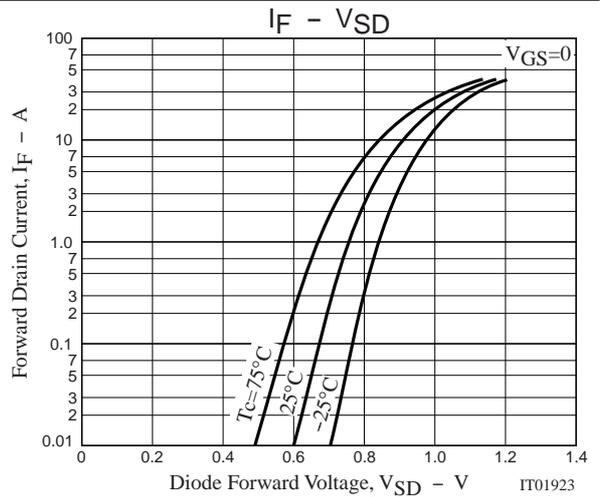
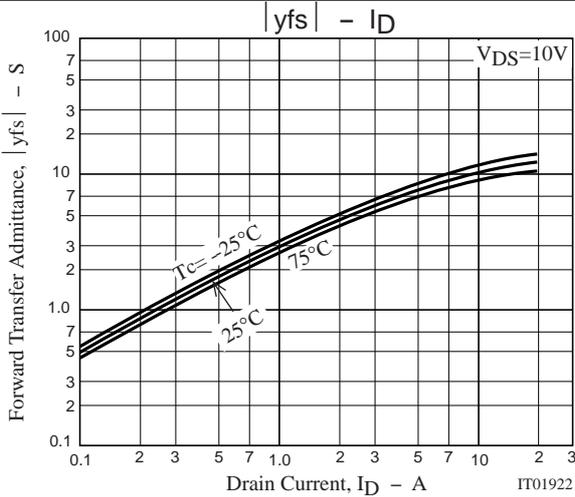
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss1	$V_{DS}=0, f=1\text{MHz}$		3000	3800	pF
	Ciss2	$V_{DS}=20\text{V}, f=1\text{MHz}$		1700	2150	pF
Output Capacitance	Coss	$V_{DS}=20\text{V}, f=1\text{MHz}$		400	420	pF
Reverse Transfer Capacitance	Crss	$V_{DS}=20\text{V}, f=1\text{MHz}$		150	185	pF
Turn-ON Delay Time	$t_d(\text{on})$	See specified Test Circuit		28	35	ns
Rise Time	$t_r$	See specified Test Circuit		85	110	ns
Turn-OFF Delay Time	$t_d(\text{off})$	See specified Test Circuit		130	165	ns
Fall Time	$t_f$	See specified Test Circuit		90	105	ns
Diode Forward Voltage	$V_{SD}$	$I_S=20\text{A}, V_{GS}=0$		1.0	1.5	V
Gate resistance	$R_g$	$f=1\text{MHz}$	1.0	2.0	3.0	$\Omega$

## Switching Time Test Circuit





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