



SANYO Semiconductors

DATA SHEET

2SK2142 — N-Channel Silicon MOSFET

General-Purpose Switching Device Applications

Features

- Low ON-resistance.
- Ultrahigh-speed switching.
- Low-voltage drive.

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V _{DSS}		250	V
Gate-to-Source Voltage	V _{GSS}		±30	V
Drain Current	I _D		12	A
Drain Current (Pulse)	I _{DP}	PW≤10μs, duty cycle≤1%	48	A
Allowable Power Dissipation	P _D		1.75	W
		T _c =25°C	70	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} =0V	250			V
Gate-to-Source Breakdown Voltage	V _{(BR)GSS}	I _G =±100μA, V _{DS} =0V	±30			V
Zero-Gate Voltage Drain Current	I _{DSS}	V _{DS} =250V, V _{GS} =0V			100	μA
Gate-to-Source Leakage Current	I _{GSS}	V _{GS} =±25V, V _{DS} =0V			±10	μA
Cutoff Voltage	V _{GS(off)}	V _{DS} =10V, I _D =1mA	1.5		2.5	V
Forward Transfer Admittance	y _{fs}	V _{DS} =10V, I _D =6A	5	8		S
Static Drain-to-Source On-State Resistance	R _{DS(on)}	I _D =6A, V _{GS} =10V		0.25	0.35	Ω

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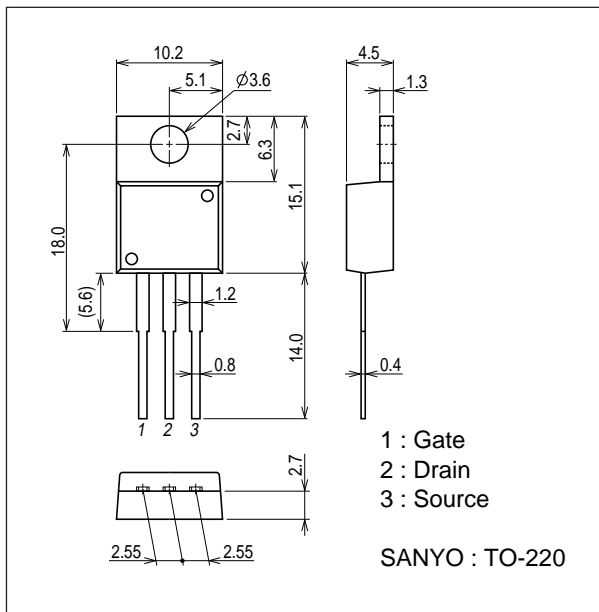
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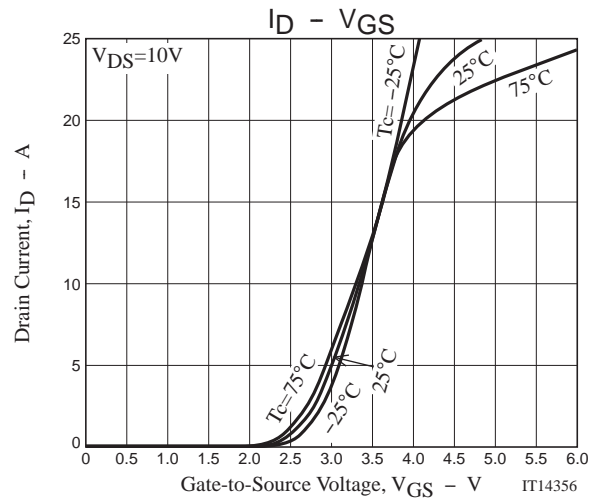
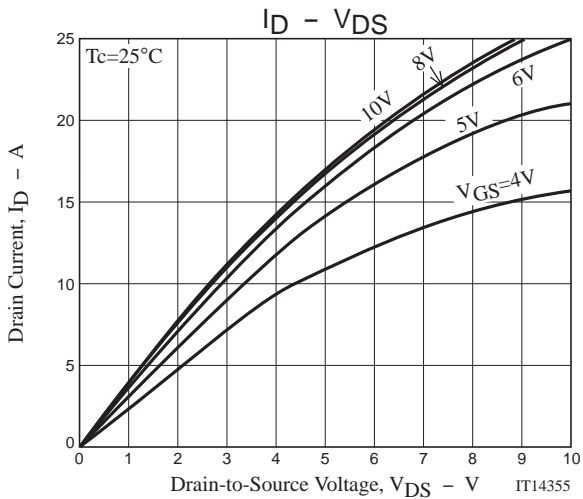
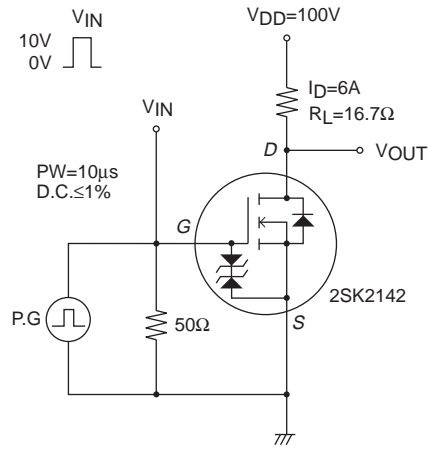
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	$V_{DS}=20V, f=1MHz$		1250		pF
Output Capacitance	Coss	$V_{DS}=20V, f=1MHz$		215		pF
Reverse Transfer Capacitance	Crss	$V_{DS}=20V, f=1MHz$		85		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		11		ns
Rise Time	t_r	See specified Test Circuit.		39		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		470		ns
Fall Time	t_f	See specified Test Circuit.		130		ns
Total Gate Charge	Qg	$V_{DS}=100V, V_{GS}=10V, I_D=12A$		65		nC
Gate-to-Source Charge	Qgs	$V_{DS}=100V, V_{GS}=10V, I_D=12A$		5		nC
Gate-to-Drain "Miller" Charge	Qgd	$V_{DS}=100V, V_{GS}=10V, I_D=12A$		23		nC
Diode Forward Voltage	VSD	$I_S=12A, V_{GS}=0V$		1.0	1.5	V

Package Dimensions

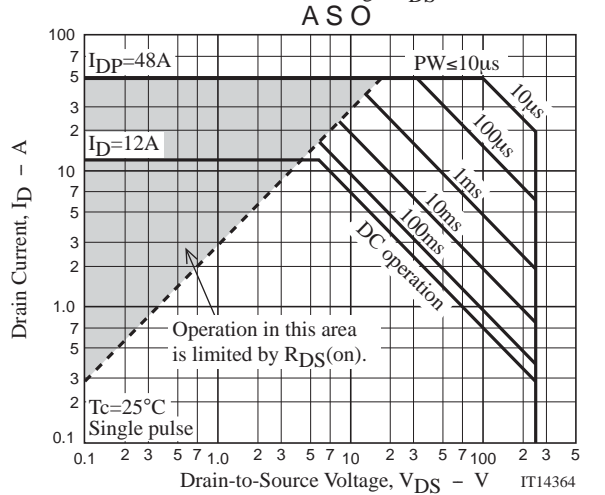
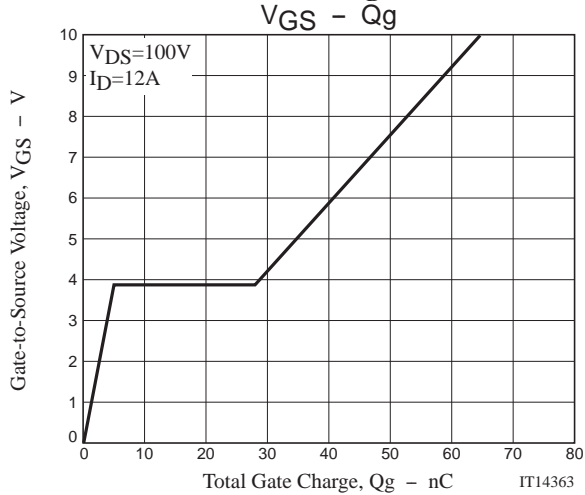
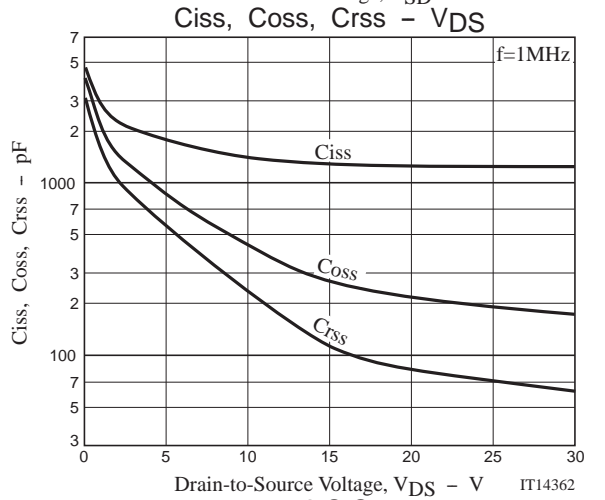
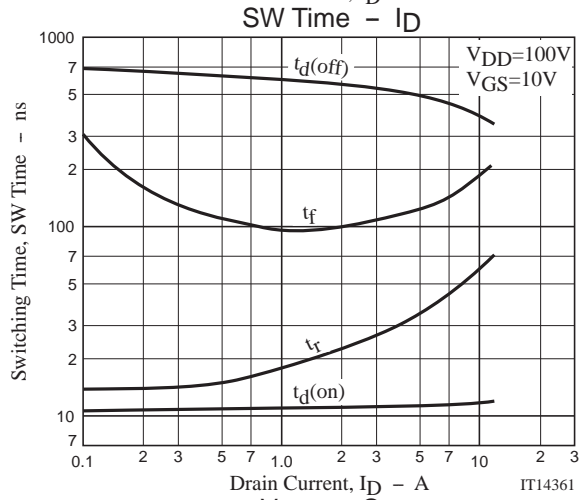
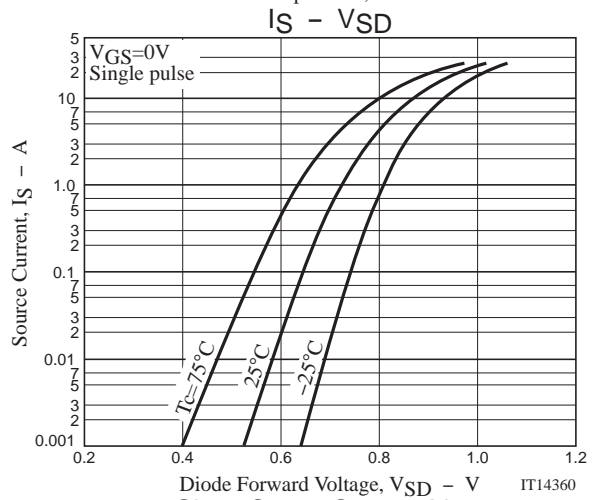
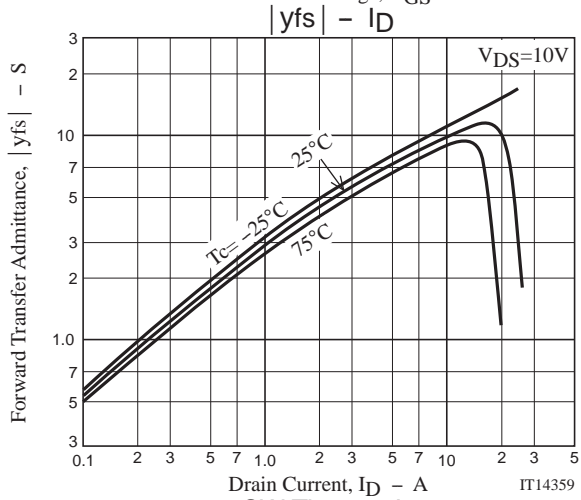
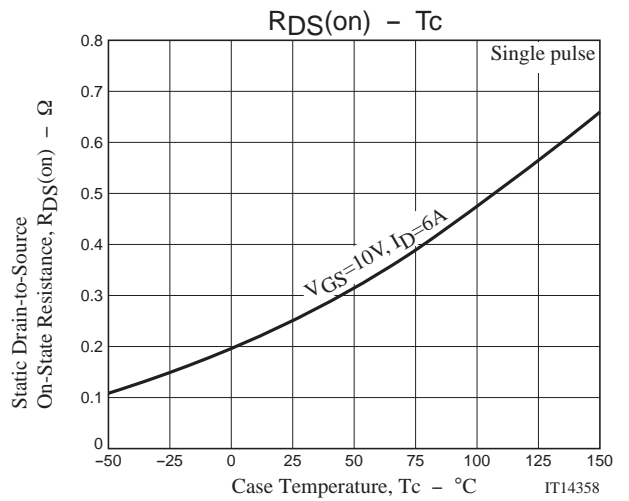
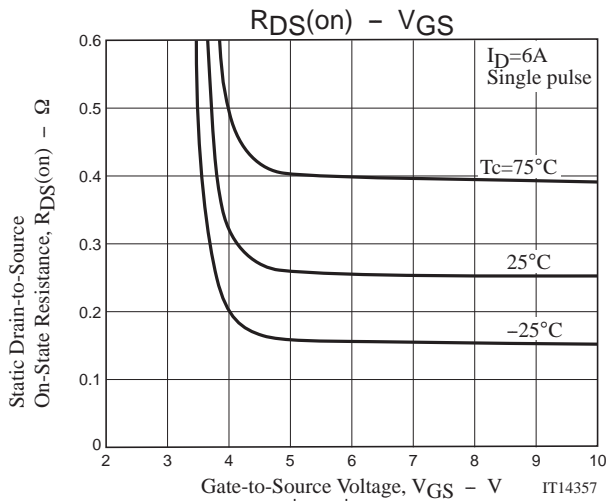
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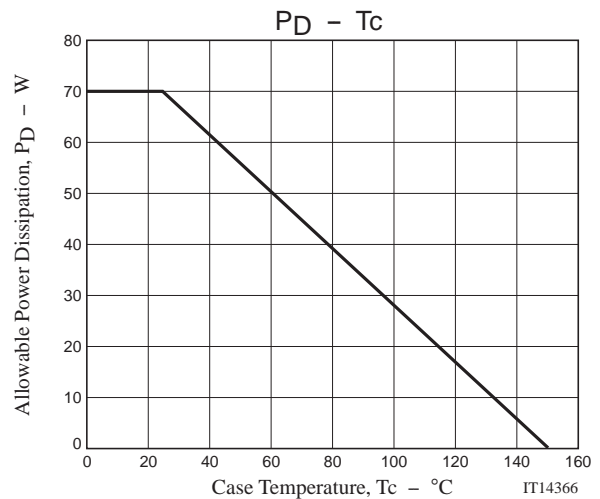
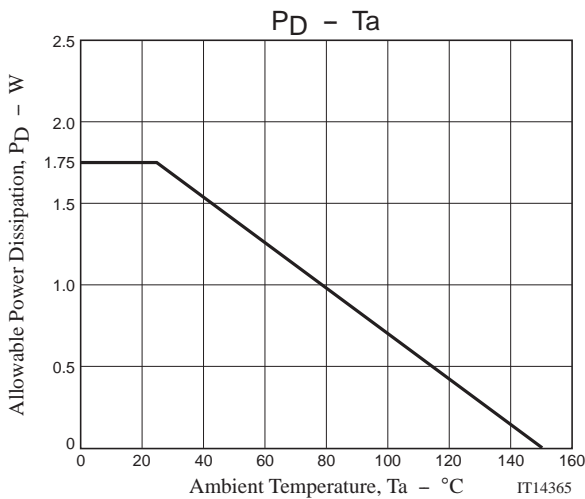


Switching Time Test Circuit



2SK2142





Note on usage : Since the 2SK2142 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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