

N-CHANNEL SILICON POWER MOS-FET

F-II SERIES

勝特力材料 886-3-5753170
 勝特力电子(上海) 86-21-54151736
 勝特力电子(深圳) 86-755-83298787
[Http://www.100y.com.tw](http://www.100y.com.tw)

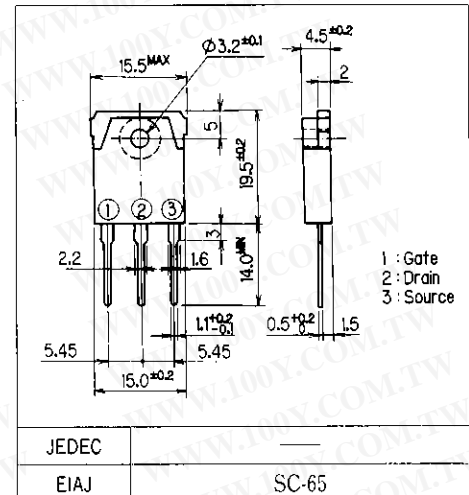
Features

- High speed switching
- Low on-resistance
- No secondary breakdown
- Low driving power
- High voltage
- $V_{GSS} = \pm 30V$ Guarantee
- Avalanche-proof

Applications

- Switching regulators
- UPS
- DC-DC converters
- General purpose power amplifier

Outline Drawings

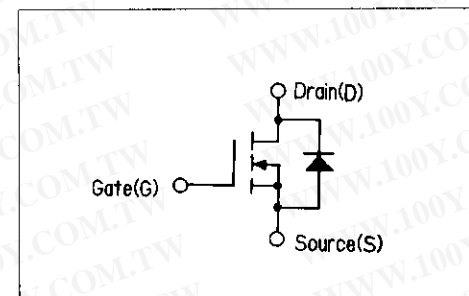


Max. Ratings and Characteristics

● Absolute Maximum Ratings ($T_c = 25^\circ C$) :

Items	Symbols	Ratings	Units
Drain-source voltage	V_{DSS}	450	V
Continuous drain current	I_D	20	A
Pulsed drain current	$I_{D(puls)}$	55	A
Continuous reverse drain current	I_{DR}	20	A
Gate-source peak voltage	V_{GSS}	± 30	V
Max. power dissipation	P_D	150	W
Operating and storage temperature range	T_{ch} T_{stg}	150 -55 ~ +150	$^\circ C$

Equivalent Circuit Schematic



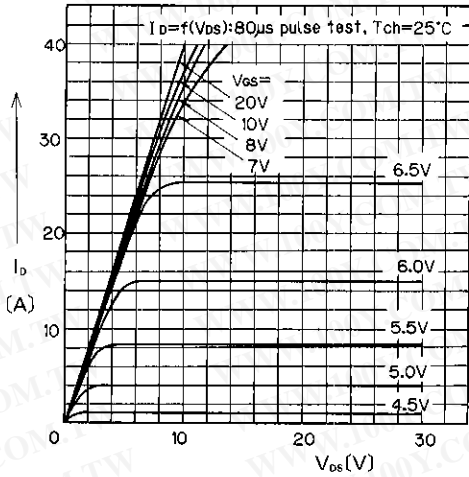
● Electrical Characteristics ($T_c = 25^\circ C$)

Items	Symbols	Test Conditions	Min.	Typ.	Max.	Units
Drain-source breakdown voltage	$V_{(BR)DSS}$	$I_D = 1mA$ $V_{GS} = 0V$	450			V
Gate threshold voltage	$V_{GS(th)}$	$I_D = 1mA$ $V_{DS} = V_{GS}$	2.5	3.5	5.0	V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = 450V$ $V_{GS} = 0V$	$T_{ch} = 25^\circ C$	10	500	μA
			$T_{ch} = 125^\circ C$	0.2	1.0	mA
Gate-source leakage current	I_{GSS}	$V_{GS} = \pm 30V$ $V_{DS} = 0V$		10	100	nA
Drain-source on-state resistance	$R_{DS(on)}$	$I_D = 10A$ $V_{GS} = 10V$		0.26	0.35	Ω
Forward transconductance	g_{fs}	$I_D = 10A$ $V_{DS} = 25V$	7	14		S
Input capacitance	C_{iss}	$V_{DS} = 25V$		2200	3300	pF
Output capacitance	C_{oss}	$V_{GS} = 0V$		320	480	
Reverse transfer capacitance	C_{rss}	$f = 1MHz$		140	210	
Turn-on time t_{on} ($t_{on} + t_{d(on)} + t_r$)	$t_{d(on)}$ t_r	$V_{CC} = 300V$ $I_D = 20A$ $V_{GS} = 10V$ $R_G = 25\Omega$		50	75	ns
				200	300	
Turn-off time t_{off} ($t_{d(off)} + t_r$)	$t_{d(off)}$ t_r			300	450	
				190	290	
Diode forward on-voltage	V_{SD}	$I_F = 2 \times I_{DR}$ $V_{GS} = 0V$ $T_{ch} = 25^\circ C$		1.25	1.88	V
Reverse recovery time	t_{rr}	$I_F = I_{DR}$ $dI/dt = 100A/\mu S$ $T_{ch} = 25^\circ C$		500		ns

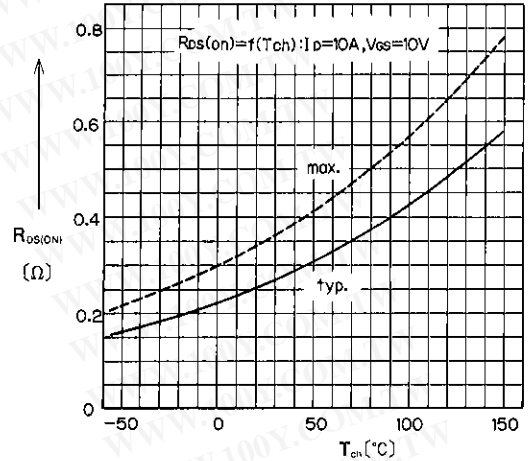
● Thermal Characteristics

Items	Symbols	Test Conditions	Min.	Typ.	Max.	Units
Thermal Resistance	$R_{th(ch-a)}$	channel to air			35.0	$^\circ C/W$
	$R_{th(ch-c)}$	channel to case			0.833	$^\circ C/W$

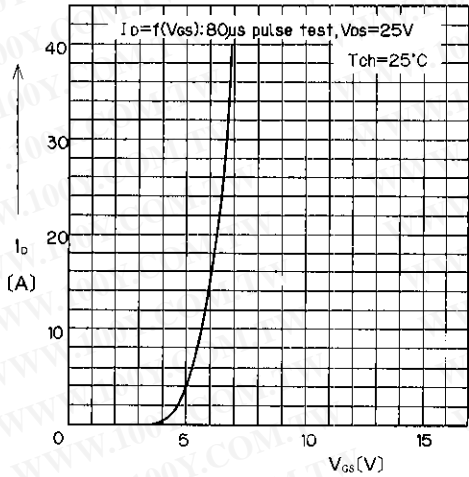
■ Characteristics



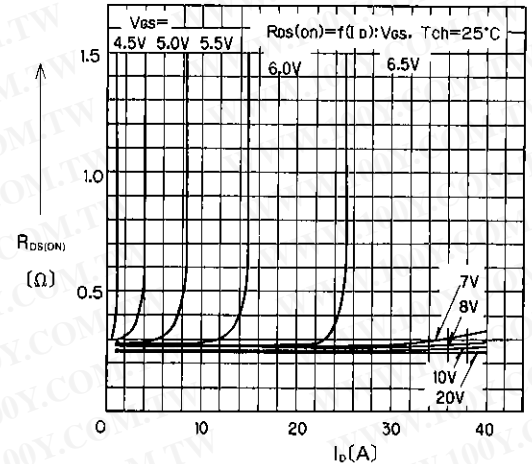
Typical Output Characteristics



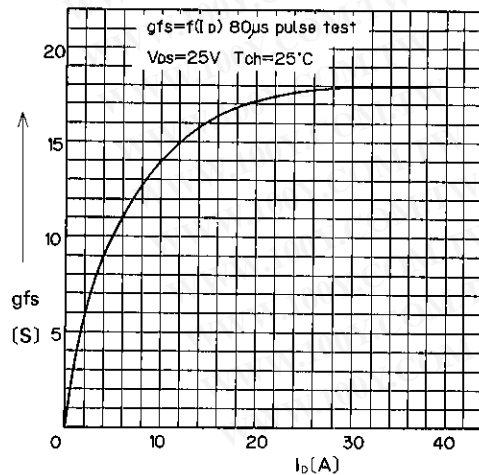
On State Resistance vs. T_{ch}



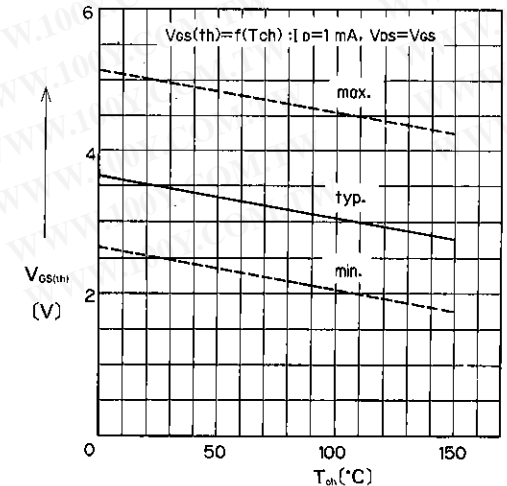
Typical Transfer Characteristics



Typical Drain-Source on State Resistance vs. I_d



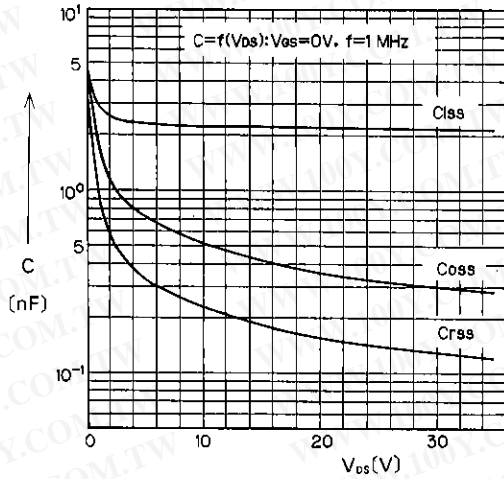
Typical Forward Transconductance vs. I_d



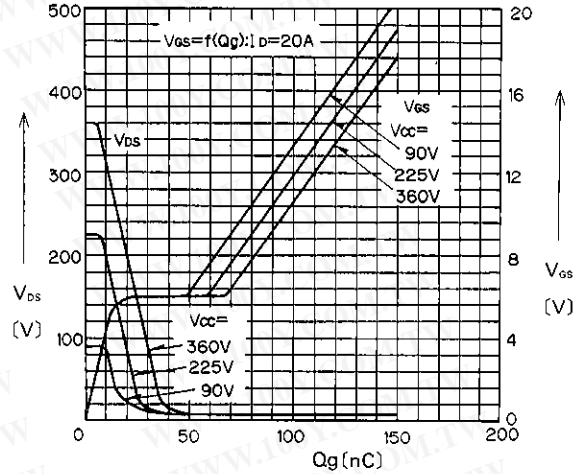
Gate Threshold Voltage vs. T_{ch}

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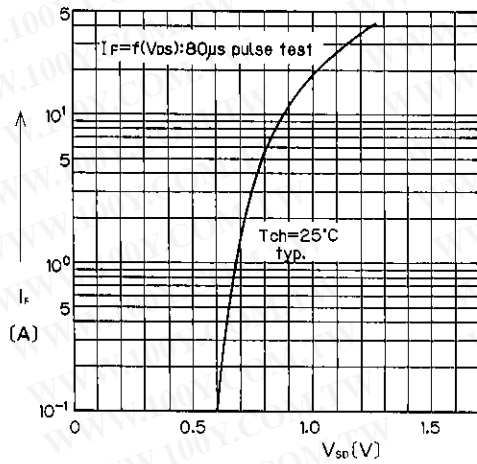
■ Characteristics



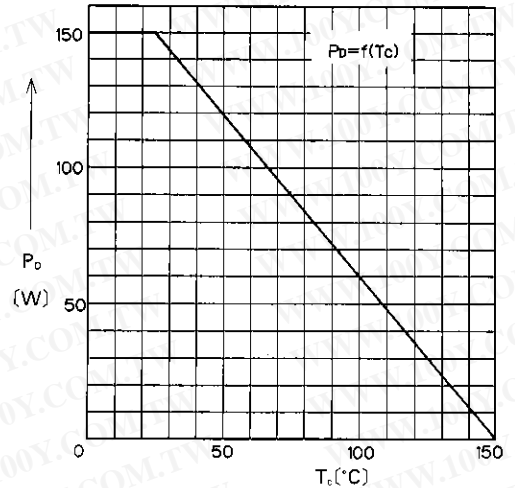
Typical Capacitance vs. V_{DS}



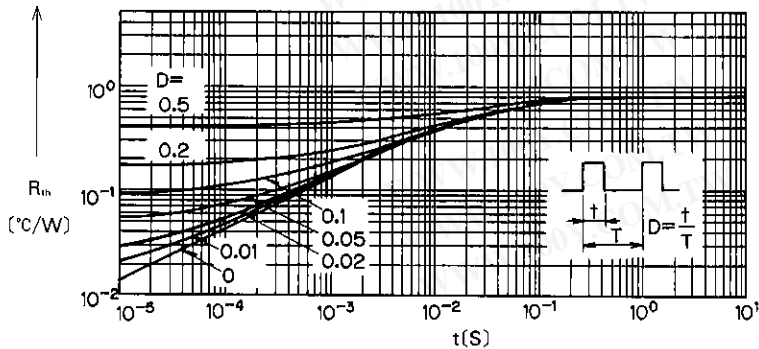
Typical Input Charge



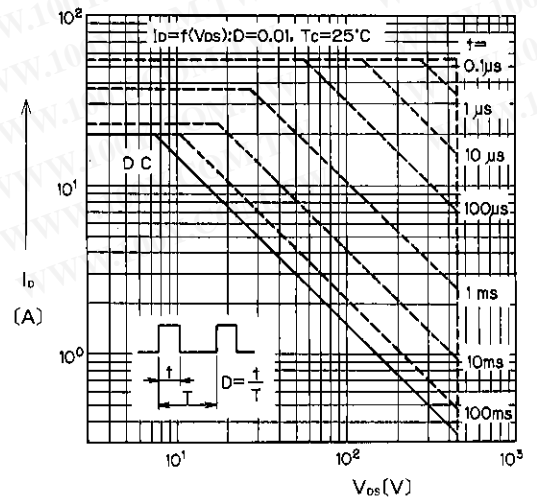
Forward Characteristics of Reverse Diode



Allowable Power Dissipation vs. T_c



Transient Thermal Impedance



Safe Operating Area