Field Effect Transistor

Silicon N Channel MOS Type (π -MOS III.5) High Speed, High Current DC-DC Converter, Relay Drive and Motor Drive Applications

Features

- Low Drain-Source ON Resistance
 - $R_{DS(ON)} = 0.15\Omega$ (Typ.)
- High Forward Transfer Admittance
 - $|Y_{fs}| = 21S$ (Typ.)
- Low Leakage Current
 - $I_{DSS} = 300 \mu A \text{ (Max.)} @ V_{DS} = 500 V$
- Enhancement-Mode
 - $V_{th} = 1.5 \sim 3.5 V @ V_{DS} = 10 V$, $I_{D} = 1 mA$

Absolute Maximum Ratings (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Drain-Source Voltage		V _{DSS}	500	V
Drain-Gate Voltage ($R_{GS} = 20k\Omega$)		V _{DGR}	500	V
Gate-Source Voltage		V _{GSS}	±30	V
Drain Current	DC	I _D	25	А
	Pulse	I _{DP}	100	
Drain Power Dissipation (Tc = 25°C)		P _D	200	W
Channel Temperature		T _{ch}	150	°C
Storage Temperature Range		T _{stg}	-55 ~ 150	°C

Thermal Characteristics

CHARACTERISTIC	SYMBOL	MAX.	UNIT
Thermal Resistance, Channel to Case	R _{th(ch-c)}	0.625	°C/W
Thermal Resistance, Channel to Ambient	R _{th(ch-a)}	35.7	°C/W

This transistor is an electrostatic sensitive device. Please handle with care.

1. GATE 2. DRAIN (HEAT SINK) 3. SOURCE JEDEC —

2-21F1B

Weight: 9.75g

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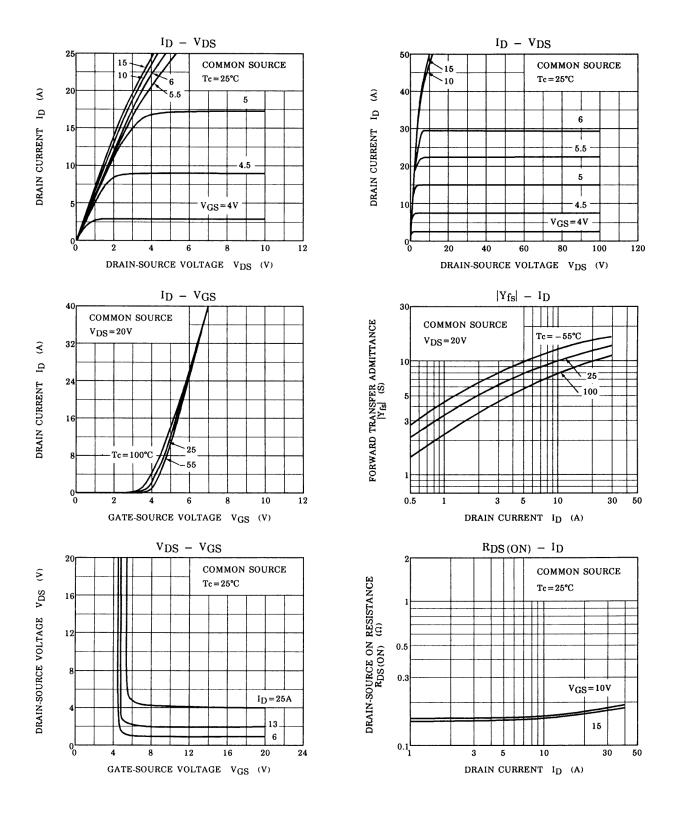
Electrical Characteristics (Ta = 25°C)

CHAR	ACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Cu	urrent	I _{GSS}	$V_{GS} = \pm 25V, V_{DS} = 0V$		_	±100	nA
Drain Cut-off Cu	Sut-off Current I_{DSS} $V_{DS} = 500V$, $V_{GS} = 0V$		$V_{DS} = 500V, V_{GS} = 0V$	-	-	300	μA
Drain-Source Br	reakdown Voltage	V _{(BR) DSS}	$I_D = 10$ mA, $V_{GS} = 0$ V	500	-	-	V
Gate Threshold	Voltage	V _{th}	$V_{DS} = 10V$, $I_D = 1mA$	1.5	-	3.5	V
Drain-Source Ol	N Resistance	R _{DS (ON)}	$I_D = 13A, V_{GS} = 10V$	_	0.15	0.20	Ω
Forward Transfe	r Admittance	Y _{fs}	$V_{DS} = 10V, I_D = 13A$	10	21	-	S
Input Capacitano	ce	C _{iss}		-	3700	5000	
Reverse Transfer Capacitance		C _{rss}	$V_{DS} = 10V, V_{GS} = 0V,$ f = 1MHz	_	400	750	pF
Output Capacita	Output Capacitance			-	920	1300	
	Rise Time	t _r		-	185	370	ns
Switching	Turn-on Time	t _{on}	V_{GS} $I_{D} = 13A$ V_{GS} V_{OUT}	-	240	480	
Time	Fall Time	t _f	G	-	250	500	
	Turn-off Time	t _{off}		-	590	1180	
			$V_{GS_0}^{10V} \downarrow I_{D} = 13A$ $V_{GS_0}^{10V} \downarrow R_L = 16\Omega$ $V_{IN} : t_r, t_f < 5 \text{ns}, V_{DD} = 200V$ $Duty \le 1\%, t_w = 10 \mu \text{s}$				
Total Gate Charge (Gate-Source Plus Gate-Drain)		Qg	V _{DD} = 400V, V _{GS} = 10V,	-	150	250	0
Gate-Source Charge		Q _{gs}	$I_D = 25A$	_	70	-	nC
Gate-Drain ("Mi	Gate-Drain ("Miller") Charge			-	80	-	

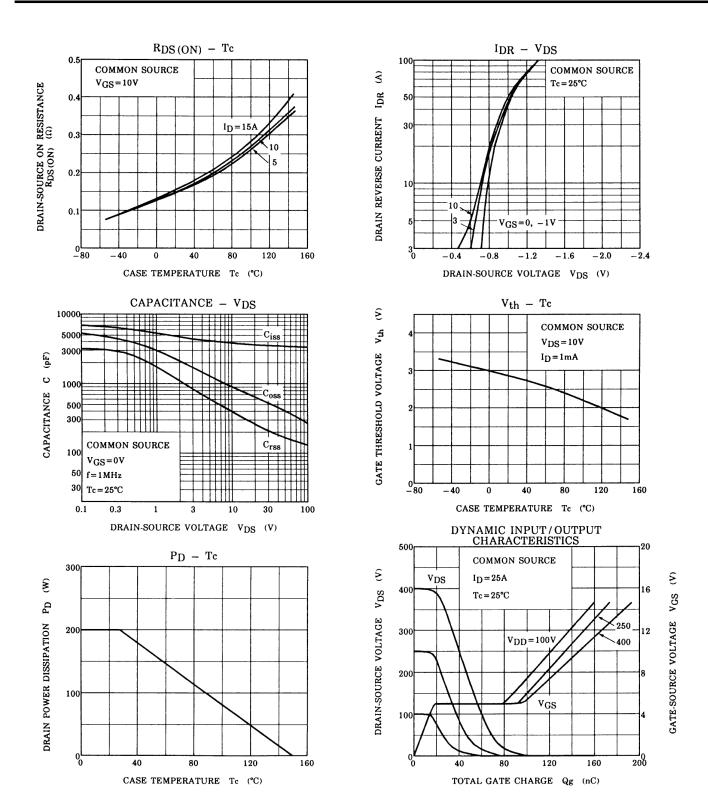
Source-Drain Diode Ratings and Characteristics (Ta = 25°C)

CHARACTERISTICS	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Continuous Drain Reverse Current	I _{DR}	_	-	-	25	А
Pulse Drain Reverse Current	I _{DRP}	-	-	-	100	Α
Diode Forward Voltage	V _{DSF}	$I_{DR} = 25A$, $V_{GS} = 0V$	-	-	-1.6	V
Reverse Recovery Time	t _{rr}	$I_{DR} = 25A$, $V_{GS} = 0V$	-	780	-	ns
Reverse Recovered Charge	Q _{rr}	dl _{DR} /dt = 100A/µs	_	9.8	-	μC

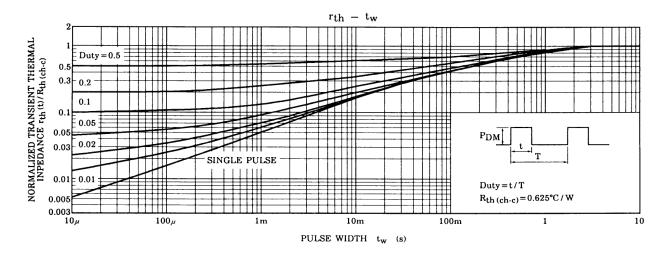
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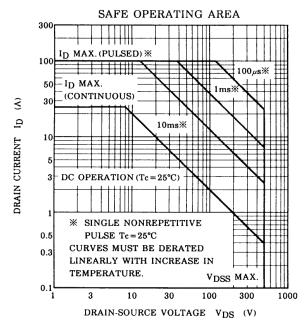


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