

MITSUBISHI Nch POWER MOSFET

FK16UM-6

HIGH-SPEED SWITCHING USE

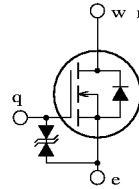
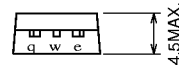
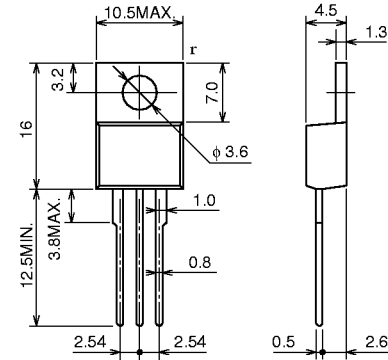
FK16UM-6



- ∧ V_{DSS}300V
- ∧ r_{Ds (ON)} (MAX)0.41Ω
- ∧ I_D 16A
- ∧ Integrated Fast Recovery Diode (MAX.) 150ns

OUTLINE DRAWING

Dimensions in mm



q GATE
w DRAIN
e SOURCE
r DRAIN

TO-220

APPLICATION

Servo motor drive, Robot, UPS, Inverter Fluorecent lamp, etc.

MAXIMUM RATINGS (T_C = 25°C)

Symbol	Parameter	Conditions	Ratings	Unit
V _{DSS}	Drain-source voltage	V _{GS} = 0V	300	V
V _{GSS}	Gate-source voltage	V _{DS} = 0V	±30	V
I _D	Drain current		16	A
I _{DM}	Drain current (Pulsed)		48	A
I _S	Source current		16	A
I _{SM}	Source current (Pulsed)		48	A
P _D	Maximum power dissipation		125	W
T _{ch}	Channel temperature		-55 ~ +150	°C
T _{stg}	Storage temperature		-55 ~ +150	°C
—	Weight	Typical value	2.0	g

Feb.1999

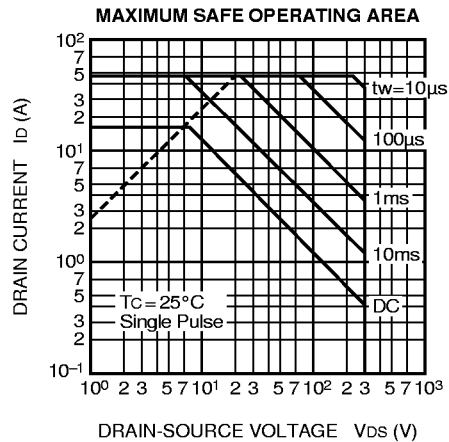
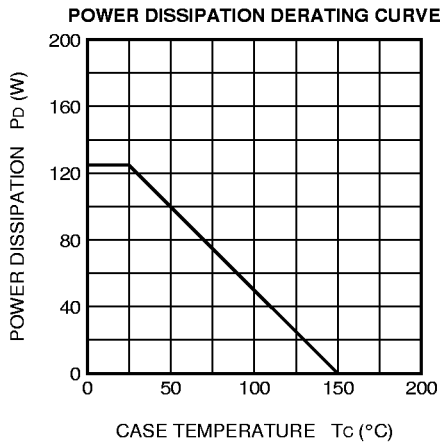
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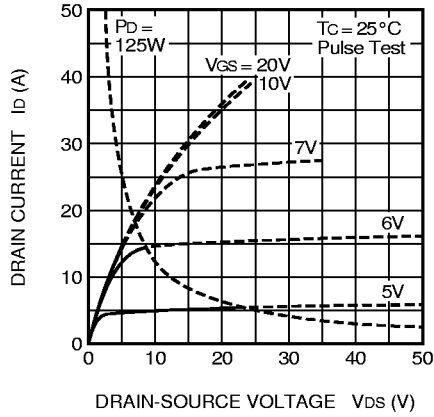
ELECTRICAL CHARACTERISTICS ($T_{ch} = 25^{\circ}\text{C}$)

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
V (BR) DSS	Drain-source breakdown voltage	$I_D = 1\text{mA}, V_{GS} = 0\text{V}$	300	—	—	V
V (BR) GSS	Gate-source breakdown voltage	$I_G = \pm 100\mu\text{A}, V_{DS} = 0\text{V}$	± 30	—	—	V
I _{GSS}	Gate-source leakage current	$V_{GS} = \pm 25\text{V}, V_{DS} = 0\text{V}$	—	—	± 10	μA
I _{DSS}	Drain-source leakage current	$V_{DS} = 300\text{V}, V_{GS} = 0\text{V}$	—	—	1	mA
V _{GS} (th)	Gate-source threshold voltage	$I_D = 1\text{mA}, V_{DS} = 10\text{V}$	2	3	4	V
r _{DS} (ON)	Drain-source on-state resistance	$I_D = 8\text{A}, V_{GS} = 10\text{V}$	—	0.31	0.41	Ω
V _{DS} (ON)	Drain-source on-state voltage	$I_D = 8\text{A}, V_{GS} = 10\text{V}$	—	2.48	3.28	V
y _{fs}	Forward transfer admittance	$I_D = 8\text{A}, V_{DS} = 10\text{V}$	6.5	10.0	—	S
C _{iss}	Input capacitance	$V_{DS} = 25\text{V}, V_{GS} = 0\text{V}, f = 1\text{MHz}$	—	1050	—	pF
C _{oss}	Output capacitance		—	220	—	pF
C _{rss}	Reverse transfer capacitance		—	45	—	pF
t _d (on)	Turn-on delay time	$V_{DD} = 150\text{V}, I_D = 8\text{A}, V_{GS} = 10\text{V}, R_{GEN} = R_{GS} = 50\Omega$	—	20	—	ns
t _r	Rise time		—	40	—	ns
t _d (off)	Turn-off delay time		—	110	—	ns
t _f	Fall time		—	50	—	ns
V _{SD}	Source-drain voltage		$I_S = 8\text{A}, V_{GS} = 0\text{V}$	—	1.5	2.0
R _{th} (ch-c)	Thermal resistance	Channel to case	—	—	1.00	$^{\circ}\text{C/W}$
t _{rr}	Reverse recovery time	$I_S = 16\text{A}, di/dt = -100\text{A}/\mu\text{s}$	—	—	150	ns

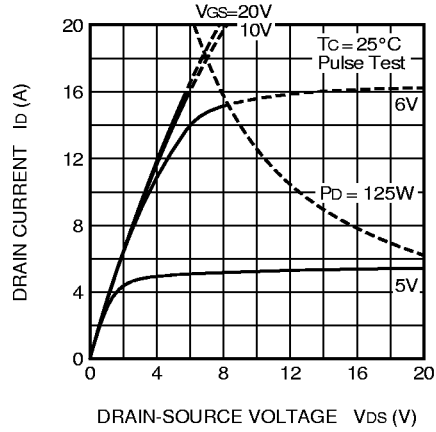
PERFORMANCE CURVES



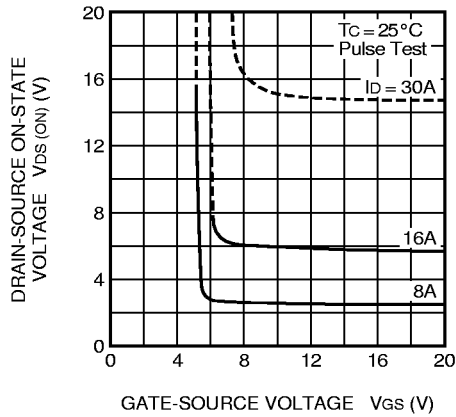
OUTPUT CHARACTERISTICS (TYPICAL)



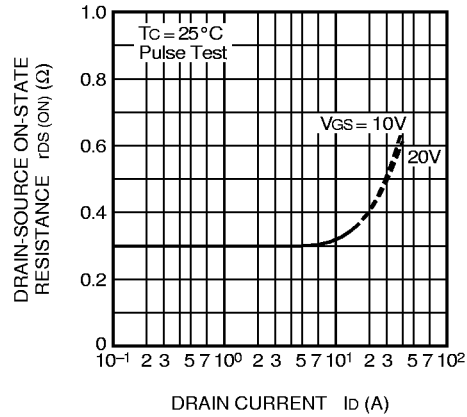
OUTPUT CHARACTERISTICS (TYPICAL)



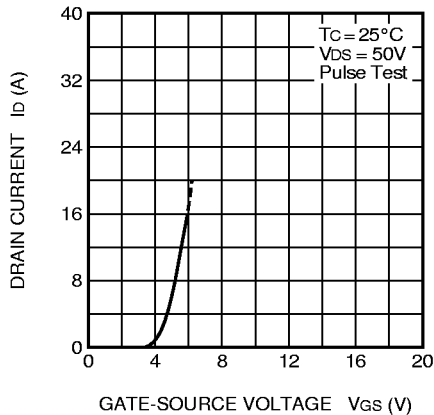
ON-STATE VOLTAGE VS. GATE-SOURCE VOLTAGE (TYPICAL)



ON-STATE RESISTANCE VS. DRAIN CURRENT (TYPICAL)



TRANSFER CHARACTERISTICS (TYPICAL)



FORWARD TRANSFER ADMITTANCE VS. DRAIN CURRENT (TYPICAL)

