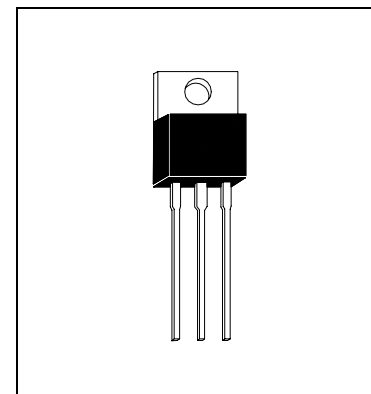




HSK1118

Description

- Field Effect Transistor.
- Silicon N Channel MOS Type.
- High Speed, High Current DC-DC Converter, Relay Drive and Motor Drive Applications



Features

- 4-Volt Gate Drive
- Low Drain-Source On Resistance - $R_{DS(on)}=0.95\Omega$ (Typ.)
- High Forward Transfer Admittance - $|Y_{fs}|=4.0S$ (Typ.)
- Low Leakage Current - $I_{DSS} = 300\mu A$ (Max.) @ $V_{DS} = 600V$
- Enhancement-Mode - $V_{th} = 1.5\sim 3.5V$ @ $V_{DS} = 10V, I_D = 1mA$

Absolute Maximum Ratings (Ta=25°C)

- Maximum Temperatures
Storage Temperature -55 ~ +150 °C
Junction Temperature 150 °C
- Maximum Power Dissipation
Total Power Dissipation (Tc=25°C) 45 W
- Maximum Voltages and Currents (Tc=25°C)
DRAIN to SOURCE Breakdown Voltage 600 V
DRAIN to GATE Breakdown Voltage 600 V
GATE to SOURCE Voltage ± 30 V
DRAIN Current (Cont.) 6 A
DRAIN Current (Pluse) 24 A

Thermal Characteristics

Characteristic	Symbol	Max.	Units
Junction to Case	R θ JC	2.77	°C/W
Junction to Ambient	R θ JA	62.5	°C/W

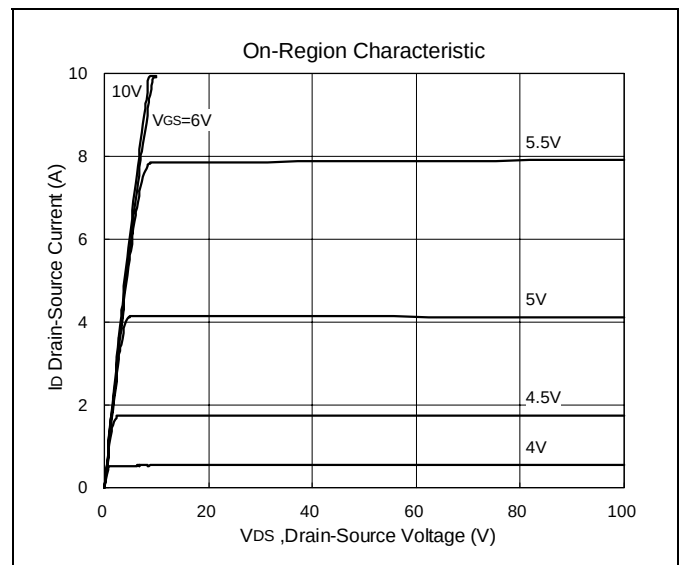
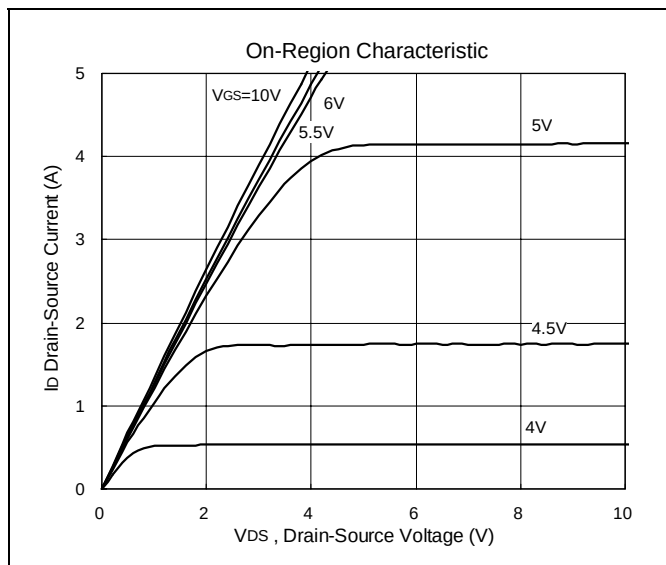
Note : This transistor is an electrostatic sensitive device. Please handle with care.



Characteristics (Ta=25°C)

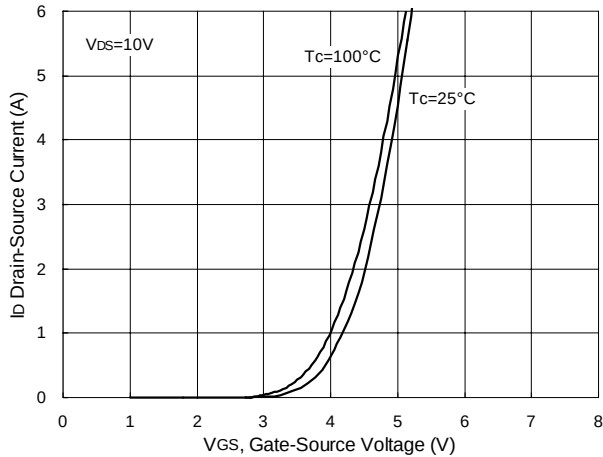
Characteristics	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	600	-	-	V	$I_D=250\mu A$
Gate Threshold Voltage	$V_{GS(th)}$	2	-	4	V	$V_{DS}=10V, I_D=1mA$
Drain Cut-Off Current	I_{DSS}	-	-	25	μA	$V_{DS}=600V$
Gate Leakage Current	I_{GSS}	-	-	± 100	nA	$V_{GS}=\pm 25V$
Drain-Source On Voltage	$V_{DS(ON)}$	-	-	6	V	$I_D=5.0A, V_G=10V$
On-State Drain Current	$I_{D(ON)}$	9	-	-	A	$V_{DS}=10V, V_{GS}=10V$
Drain-Source ON Resistance	$R_{DS(ON)}$	-	0.95	1.25	Ω	$V_{GS}=10V, I_D=3A$
Input Capacitance	C_{iss}	-	2000	-	pF	$V_{DS}=10V, V_{GS}=0V$ $f=1MHz$
Reverse Transfer Capacitance	C_{rss}	-	500	-	pF	
Output Capacitance	C_{oss}	-	740	-	pF	
Switching Time	T_r	-	50	-	nS	$V_{IN} : T_r, T_f < 5nS$ $V_{DD}=300V, I_D=3A$ $V_{GS}=10V$ $Duty \leq 1\%, t_w=10\mu S$
	T_{on}	-	80	-		
	T_f	-	40	-		
	T_{off}	-	170	-		
Total Gate Charge (Gate-Source Plus Gate-Drain)	Q_g	-	60	-	nC	$I_D=6A$ $V_{DS}=400V$ $V_{GS}=10V$
Gate-Source Charge	Q_{gs}	-	30	-	nC	
Gate-Drain Charge (Miller)	Q_{gd}	-	30	-	nC	

Characteristics Curve

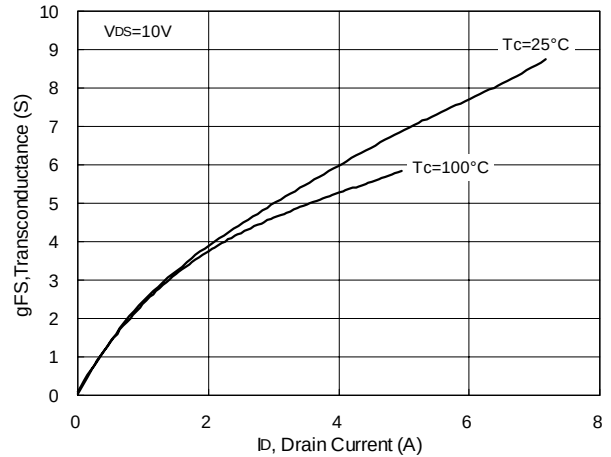




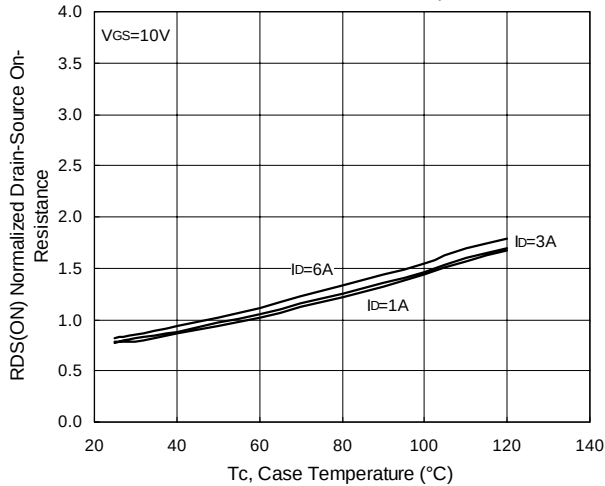
Drain Current Variation & Gate Voltage & Temperature



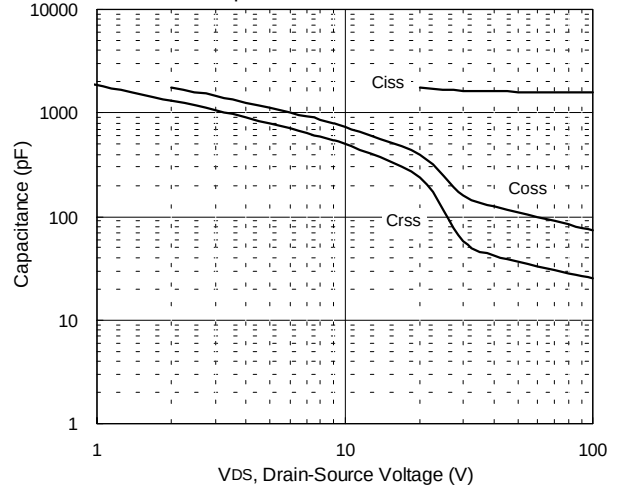
Transconductance Variation & Drain Current & Temperature



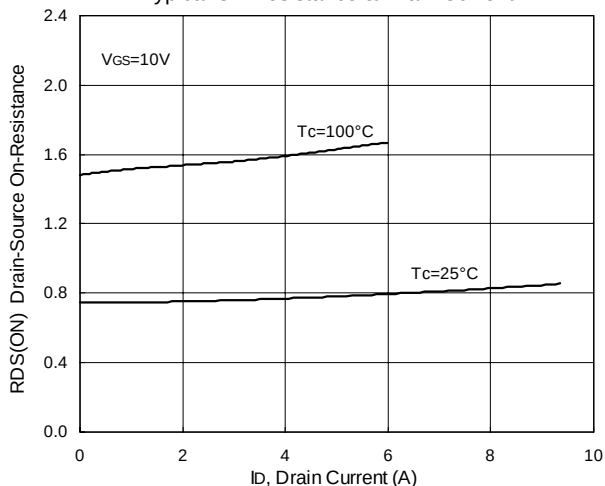
On Resistance Variation & Temperature



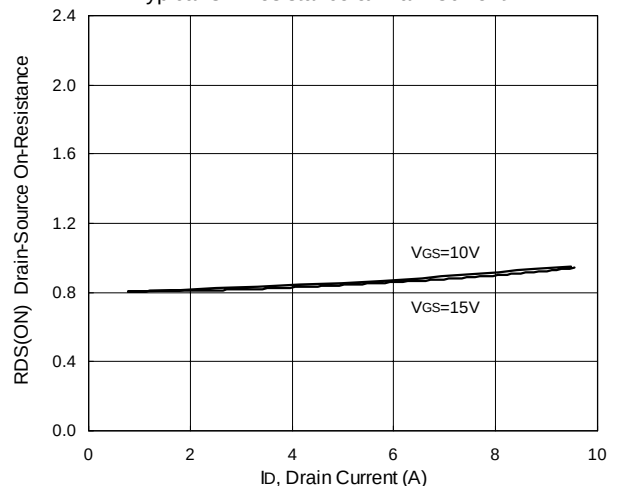
Capacitance Characteristics



Typical On-Resistance & Drain Current

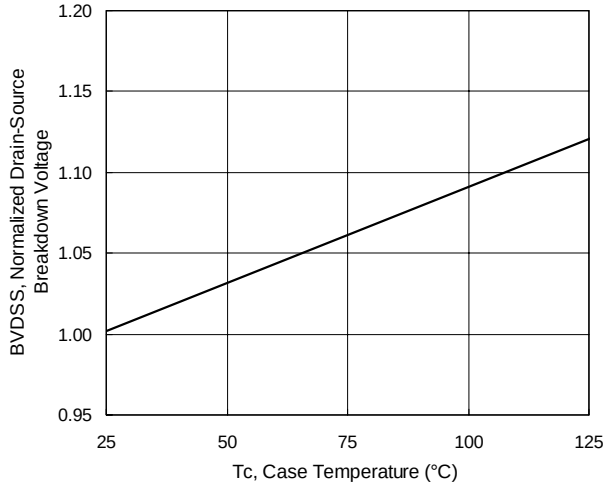


Typical On-Resistance & Drain Current

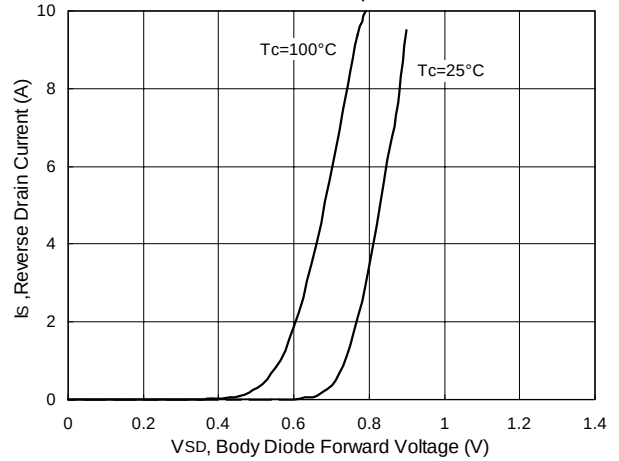




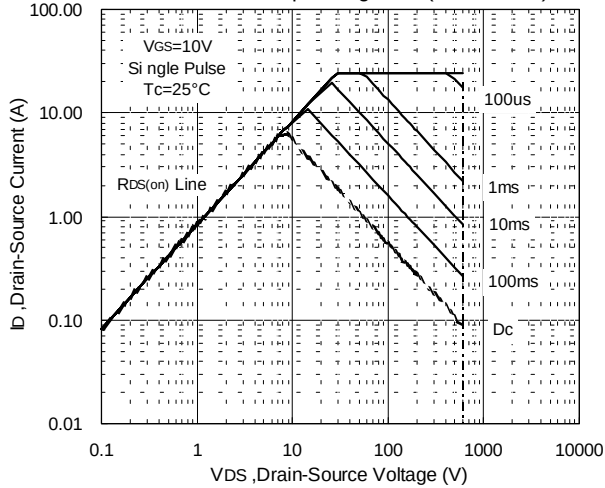
Breakdown Voltage Variation & Temperature



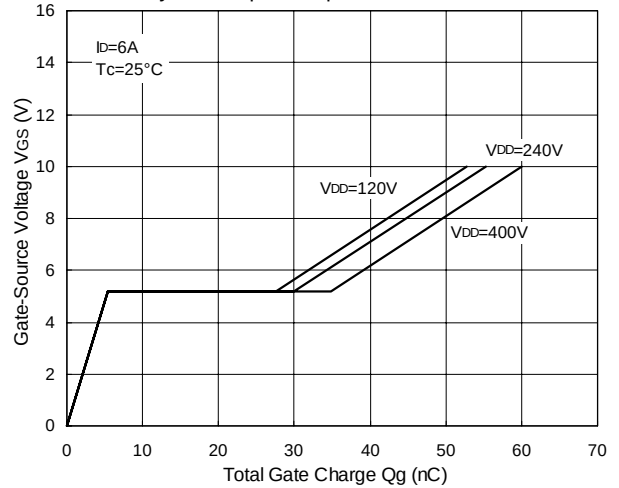
Body Diode Forward Voltage Variation & Current & Temperature



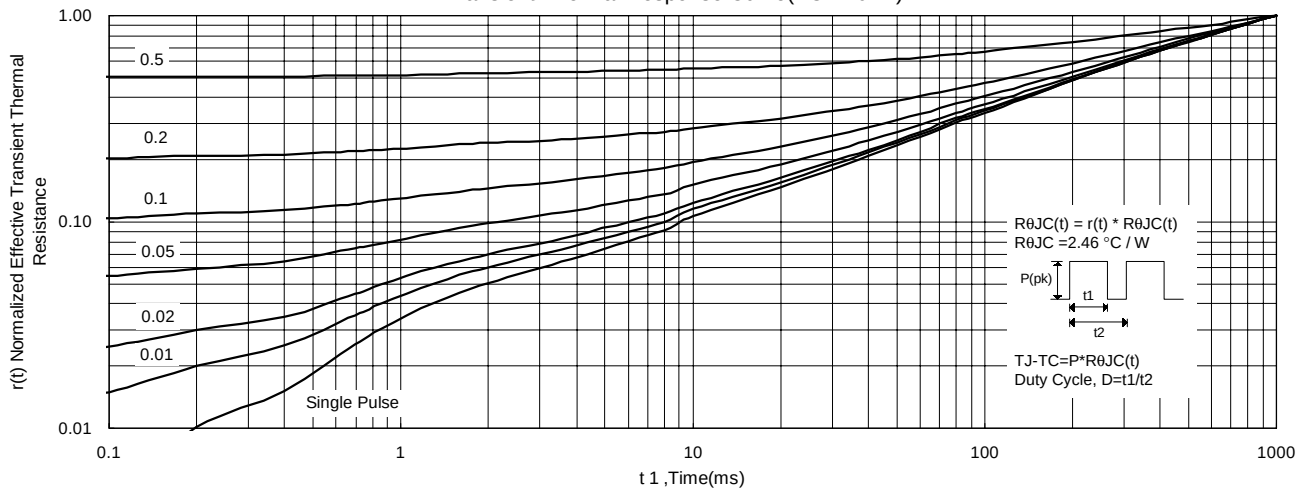
Maximum Safe Operating Area (TO-220 FP)



Dynamic Input /Output Characteristics

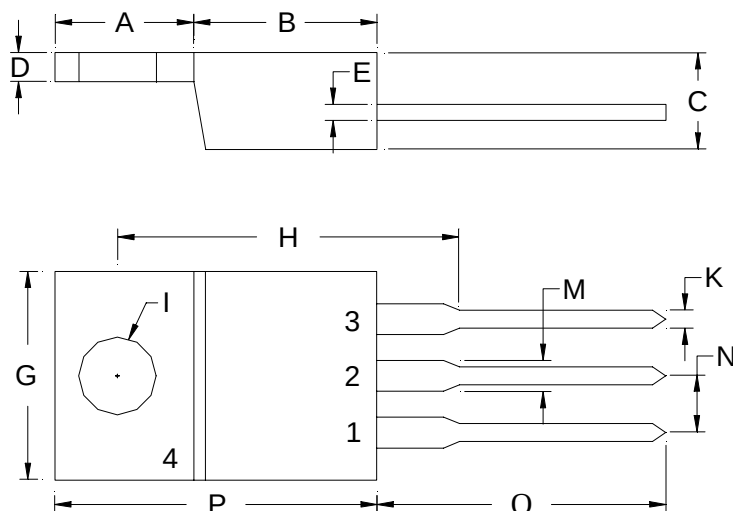


Transient Thermal Response Curve(TO-220FP)



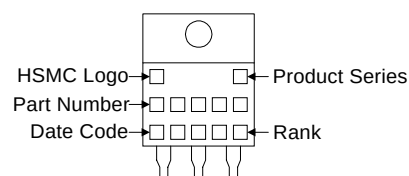


TO-220AB Dimension



3-Lead TO-220AB Plastic Package
HSMC Package Code : E

Marking :



Style : Pin 1. Gate 2. Drain 3. Source

*:Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.2197	0.2949	5.58	7.49	I	-	*0.1508	-	*3.83
B	0.3299	0.3504	8.38	8.90	K	0.0295	0.0374	0.75	0.95
C	0.1732	0.185	4.40	4.70	M	0.0449	0.0551	1.14	1.40
D	0.0453	0.0547	1.15	1.39	N	-	*0.1000	-	*2.54
E	0.0138	0.0236	0.35	0.60	O	0.5000	0.5618	12.70	14.27
G	0.3803	0.4047	9.66	10.28	P	0.5701	0.6248	14.48	15.87
H	-	*0.6398	-	*16.25					

Notes : 1.Dimension and tolerance based on our Spec. dated Sep. 07,1997.

2.Controlling dimension : millimeters.

3.Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material.

4.If there is any question with packing specification or packing method, please contact your local HSMC sales office.

Material :

- Lead : 42 Alloy ; solder plating
- Mold Compound : Epoxy resin family, flammability solid burning class:UL94V-0

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