



# HIRF630

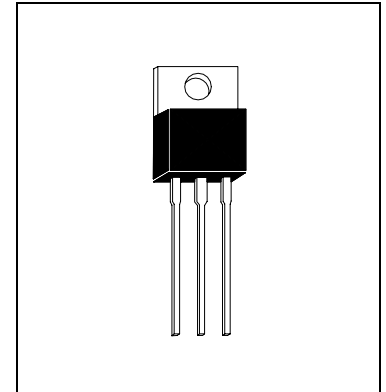
N - Channel MOSFETs

## Description

Dynamic  $dv / dt$  Rating

- Repetitive Avalanche Rated
- Fast Switching
- Ease of Paralleling
- Simple Drive Requirements

This N - Channel MOSFETs provide the designer with the best combination of fast switching, ruggedized device design, low on-resistance and cost-effectiveness.



## Absolute Maximum Ratings (Ta=25°C)

- Maximum Temperatures
  - Storage Temperature ..... -55 ~ +150 °C
  - Junction Temperature ..... 150 °C Maximum
- Maximum Power Dissipation
  - Total Power Dissipation (Tc=25°C) ..... 74 W
- Maximum Voltages and Currents (Tc=25°C)
  - Drain To Source Breakdown Voltage ..... 200 V
  - Gate To Source Voltage ..... ± 20 V
  - Continuous Source Current ..... 9 A
  - Pulsed Drain Current ..... 36 A

## Characteristics (Ta=25°C)

Symbol	Parameter	Max.	Units
ID Tc=25°C	Continuous Drain Current, VGS at 10V	9	A
EAS	Single Pulse Avalanche Energy (1)	250	mJ
IAR	Avalanche Current (2)	9	A
EAR	Repetitive Avalanche Energy (2)	7.4	mJ
dv / dt	Peak Diode Recovery $dv / dt$ (3)	5	V / ns

Note :  $V_{DD}=50V$ , starting  $T_J=25°C$ ,  $L=4.6mH$ ,  $R_Q=25\Omega$ ,  $I_{AS}=9A$

Repetitive rating; width limited by max. Junction temperature.  $I_{SD}\leq 9A$ ,  $di/dt\leq 120A / \mu s$ ,  $V_{DD}\leq V_{(BR)DSS}$ ,  $T_J\leq 150°C$

## Thermal Resistance

Symbol	Parameter	Min.	Typ.	Max.	Units
RθJC	Junction to Case	-	-	1.7	°C/W
RθCS	Case to Sink, Flat, Greased Surface	-	0.5	-	
RθJA	Junction to Ambient	-	-	62	

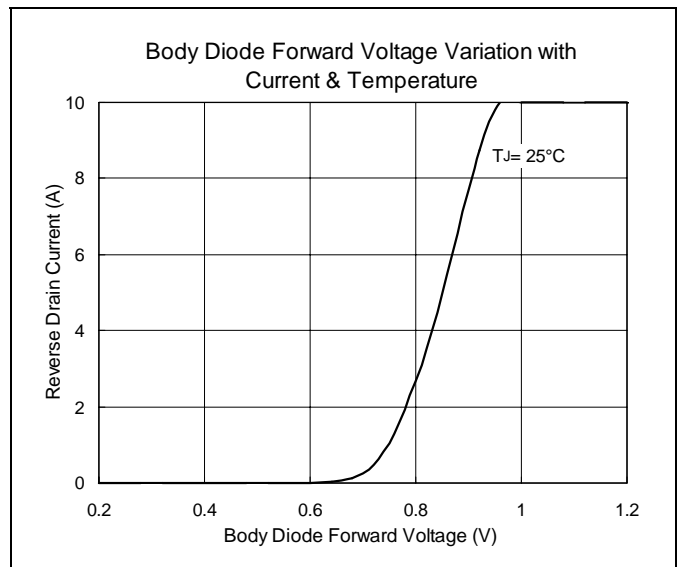
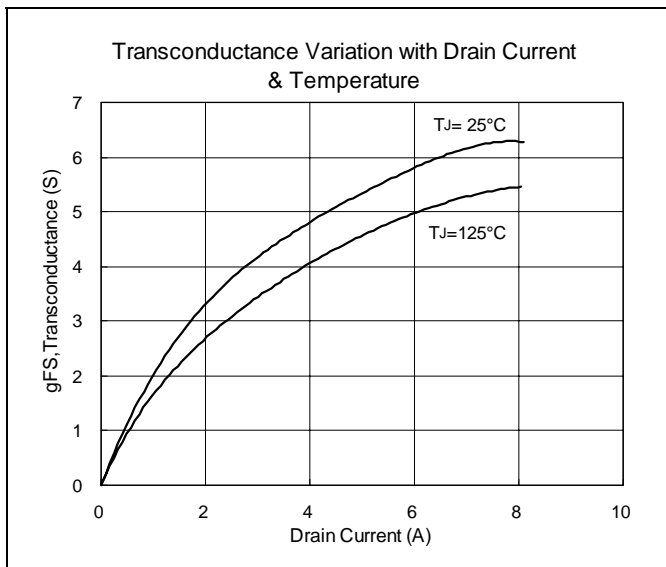
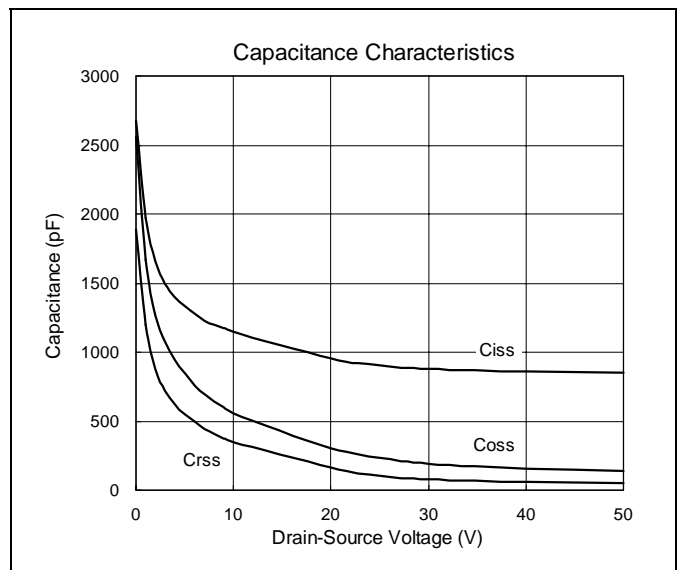
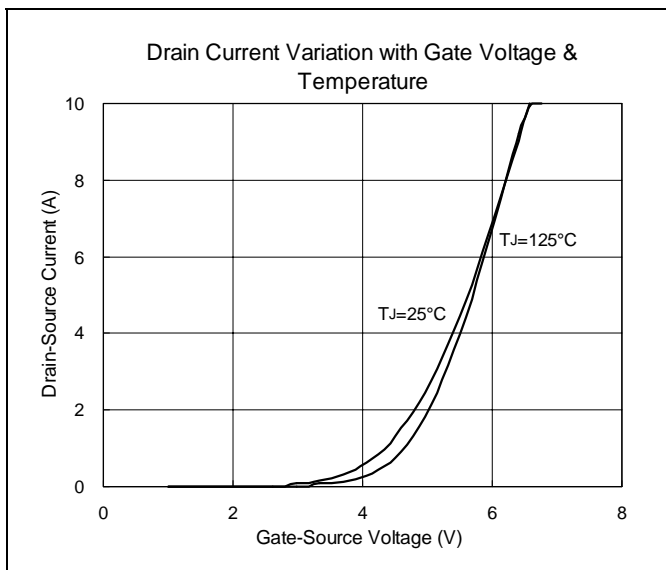
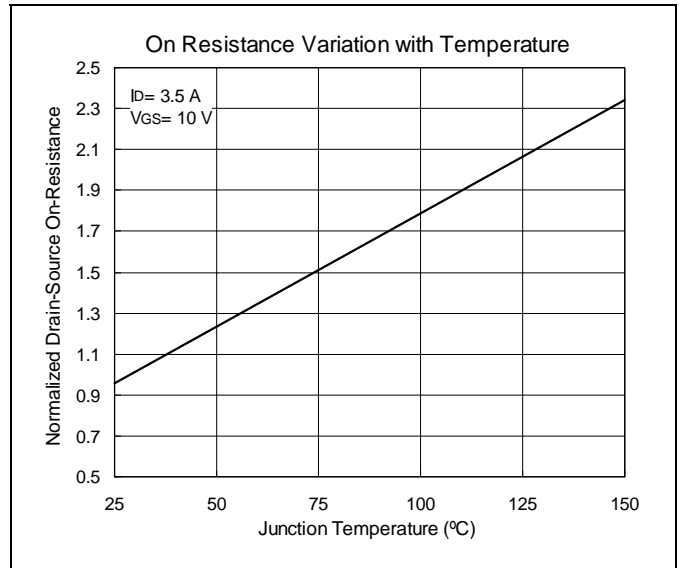
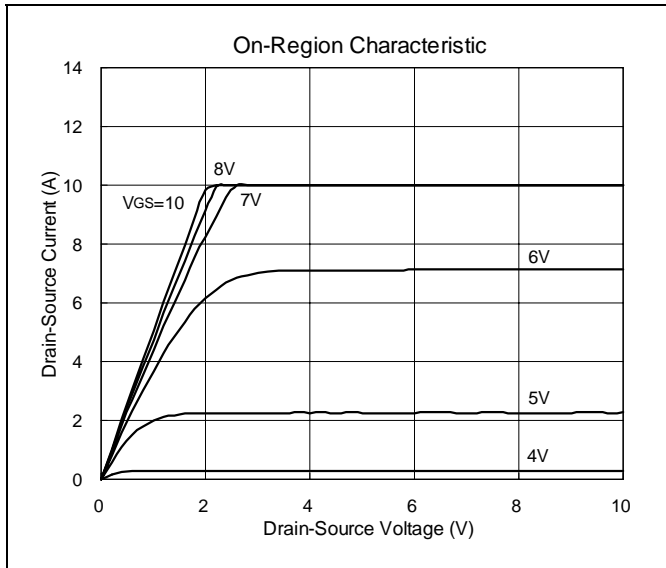


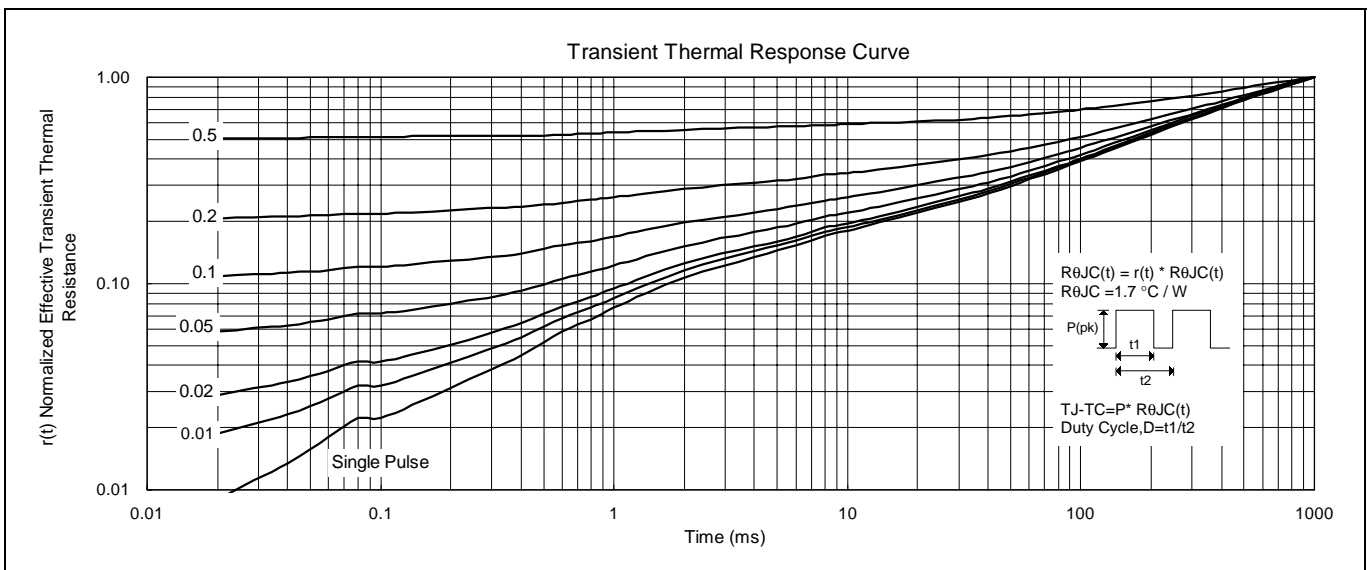
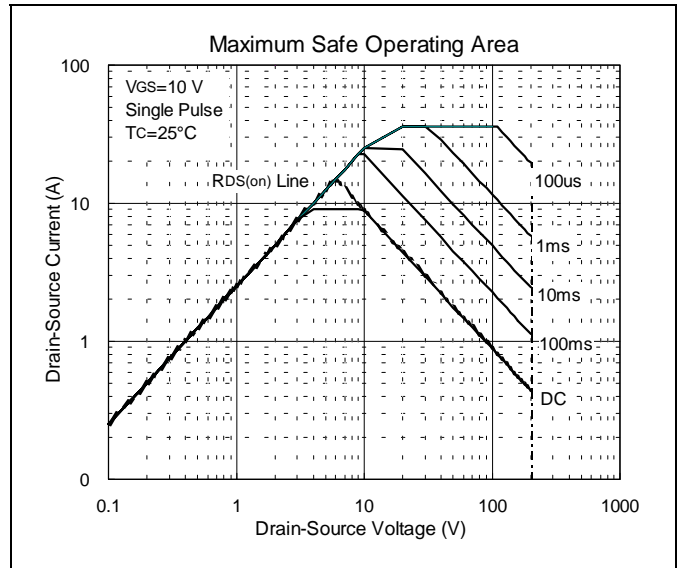
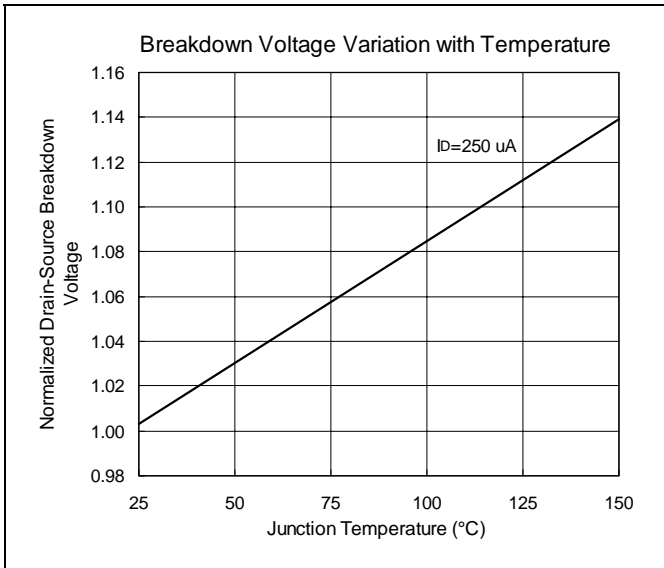
### Characteristics (Ta=25°C)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
V(BR)DSS	200	-	-	V	ID=100uA
VGS(th)	2	-	4	V	VDS=4V, ID=250uA
IDSS	-	-	25	uA	VDS=200V
IGSS	-	-	100	nA	VGS=20V
IGSS	-	-	-100	nA	VGS=-20V
Qg	-	-	40	nC	ID=10A
Qgs	-	-	8	nC	VDS=200V
Qgd	-	-	10	nC	VGS=10V
ton	-	200	-	nS	VDD=100V
td(off)	-	90	-	nS	ID=5A
tf	-	60	-	nS	VGS=10V
VDS(on)	-	-	2	V	ID=5.0A, VG = 10V
ID(on)	9	-	-	A	VDS=10V, VGS=10V
RDS(on)	-	-	0.4	Ω	VGS=10V, ID = 5.4A
Ciss	-	800	-	pF	VGS=0V
Coss	-	240	-	pF	VDS=25V
Crss	-	90	-	pF	f=1MHz



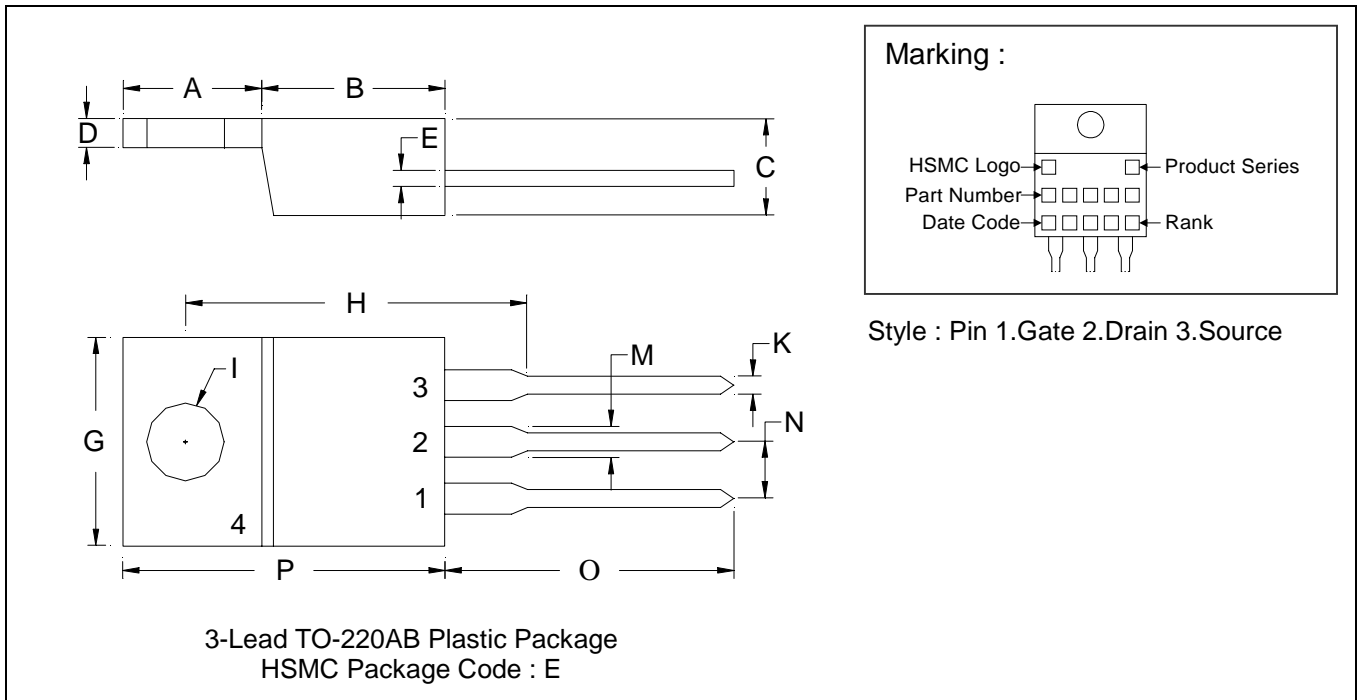
### Characteristics Curve







### TO-220AB Dimension



\*: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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