

/ Descriptions

TO-252
P-CHANNEL MOSFET in a TO-252 Plastic Package.

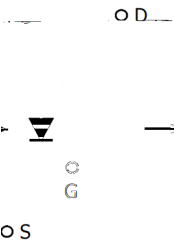
/ Features

$V_{DS} (V) = -60V$ $I_D = -14 A$ ($V_{GS} = 20V$)
 $R_{DS(on)1@-10V} 100m$ (Type.83m)
 $R_{DS(on)2@-4.5V} 130m$ (Type.100m)
HF Product.

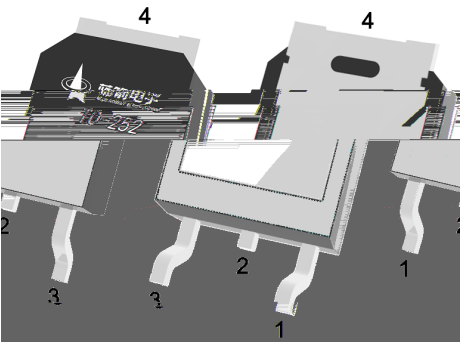
/ Applications

Motor Drive,Power Tools,LED Lighting.

/ Equivalent Circuit



/ Pinning



PIN1 G PIN 2 D PIN 3 S PIN 4 D

/ Marking

See Marking Instructions.

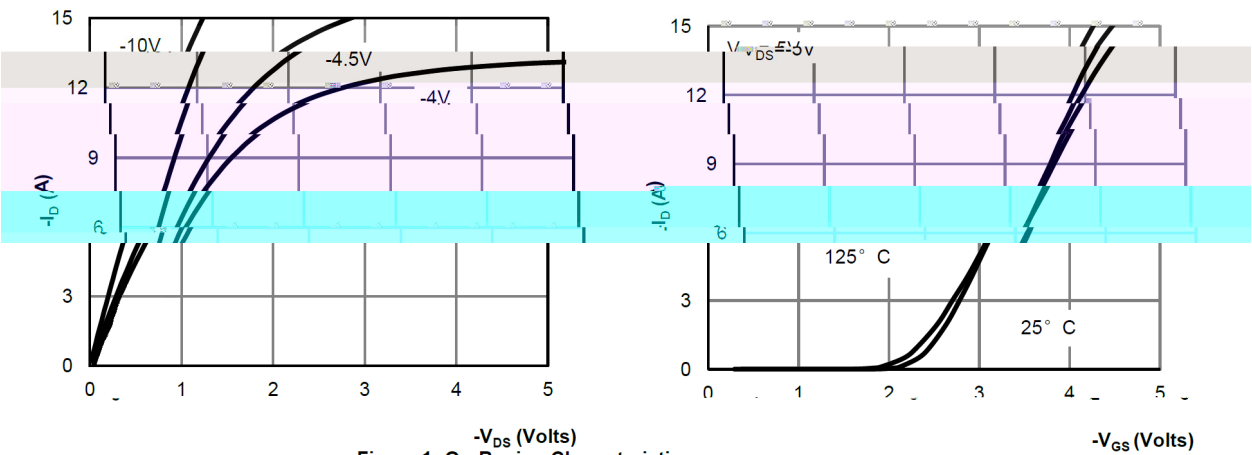
/ Absolute Maximum Ratings(Ta=25)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	-60	V
Drain Current		$I_D(T_c=25)$	-14	A
Drain Current - Pulsed		I_{DM}	-42.5	A
Gate-Source Voltage		V_{GS}	± 20	V
Power Dissipation		$P_D(T_c=25)$	32	W
Storage Temperature Range		T_{stg}	-55 ~ 150	
Thermal Resistance-Junction to Ambient	t 10s	R_{JA}	28	/W
	Steady-State		55	
Thermal Resistance-Junction to Case	Steady-State	R_{JC}	3.91	

/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DS}$	$V_{GS}=0V$ $I_D=-250\mu A$	-60	-65		V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=-250\mu A$	-1	-1.6	-2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=-10V$ $I_D=-10A$		83	100	m Ω
		$V_{GS}=-4.5V$ $I_D=-5A$		100	130	m Ω
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-60V$ $V_{GS}=0V$			-1.0	μA
Gate-Body leakage current	I_{GSS}	$V_{GS}=\pm 20V$ $V_{DS}=0V$			± 100	nA
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS}=0V$ $I_S=-1A$ $T_J=25$			-1.2	V
Gate resistance	R_g	f=1MHz		6.5		Ω
Input Capacitance	C_{iss}	$V_{DS}=-25V$ $V_{GS}=0V$ f=1.0MHz		890		pF
Output Capacitance	C_{oss}			90		
Reverse Transfer Capacitance	C_{rss}			64		
Total Gate Charge	$Q_{g(-10V)}$	$V_{DS}=-10V$ $V_{GS}=-10.0V$ $I_D=-3A$		12.3		nC
Total Gate Charge	$Q_{g(-4.5V)}$			6.3		
Gate-to-Source Charge	Q_{gs}			1.6		
Gate-to-Drain Charge	Q_{gd}			2.4		
Turn-On Delay Time	$t_{d(on)}$	$V_{DS}=-10V$ $V_{GS}=-10V$ $R_L=5.4\Omega$ $R_{GEN}=3\Omega$		12		ns
Turn-On Rise Time	t_r			20		
Turn-Off Delay Time	$t_{d(off)}$			20		
Turn-Off Fall Time	t_f			25		

/ Electrical Characteristic Curve



istics

Figure 1: On-Region Characteristics

Figure 2: Transfer Characteri

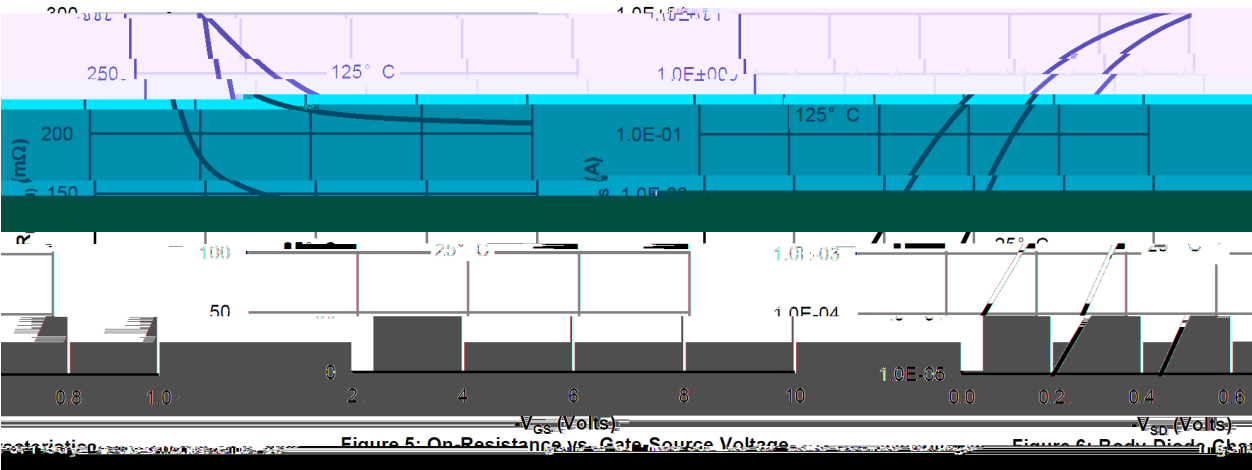
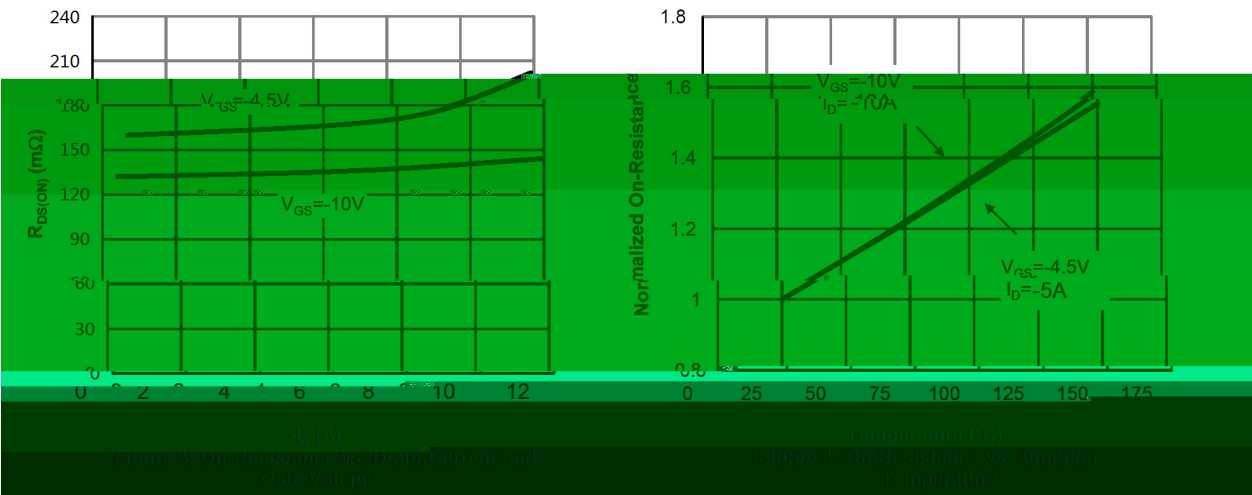
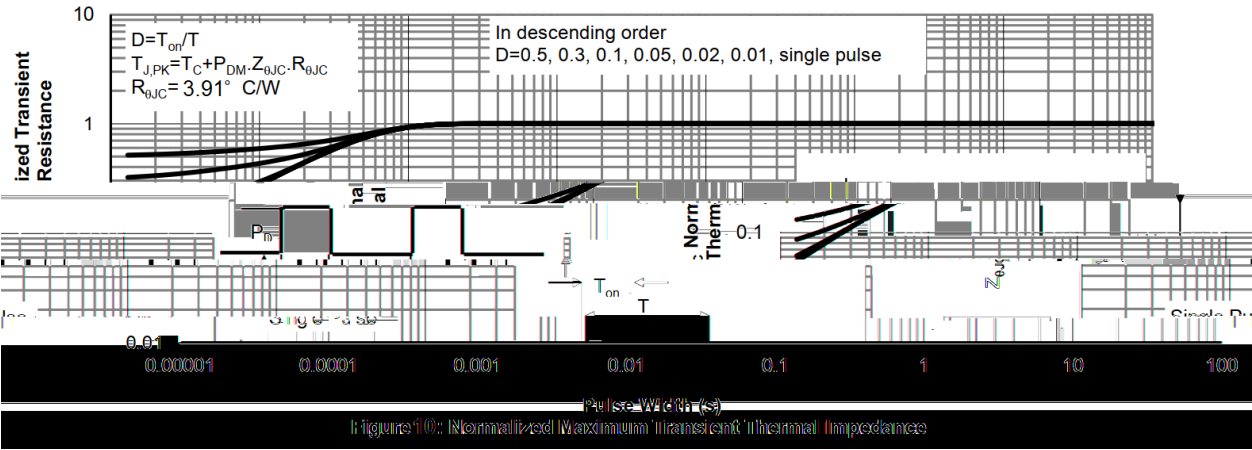
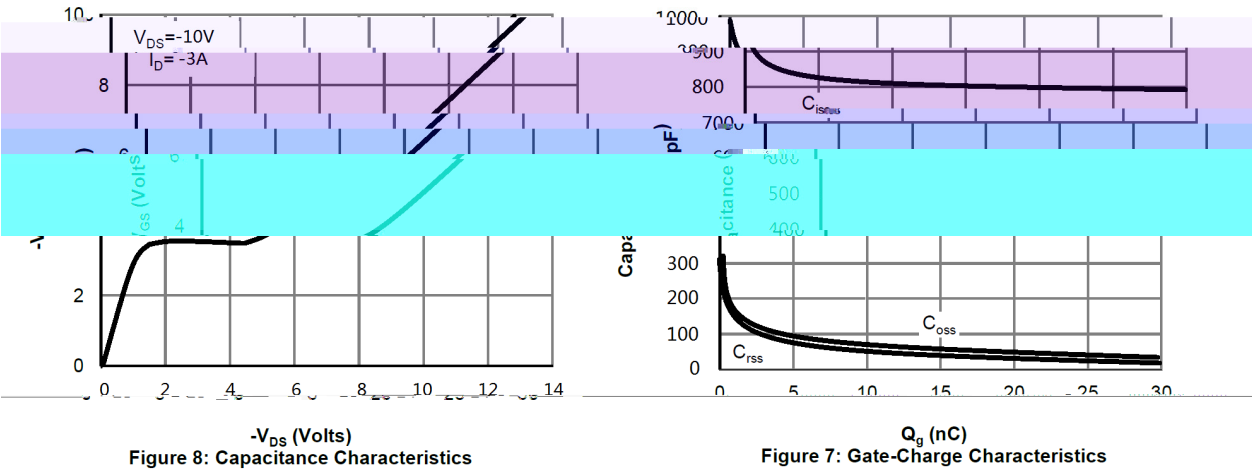
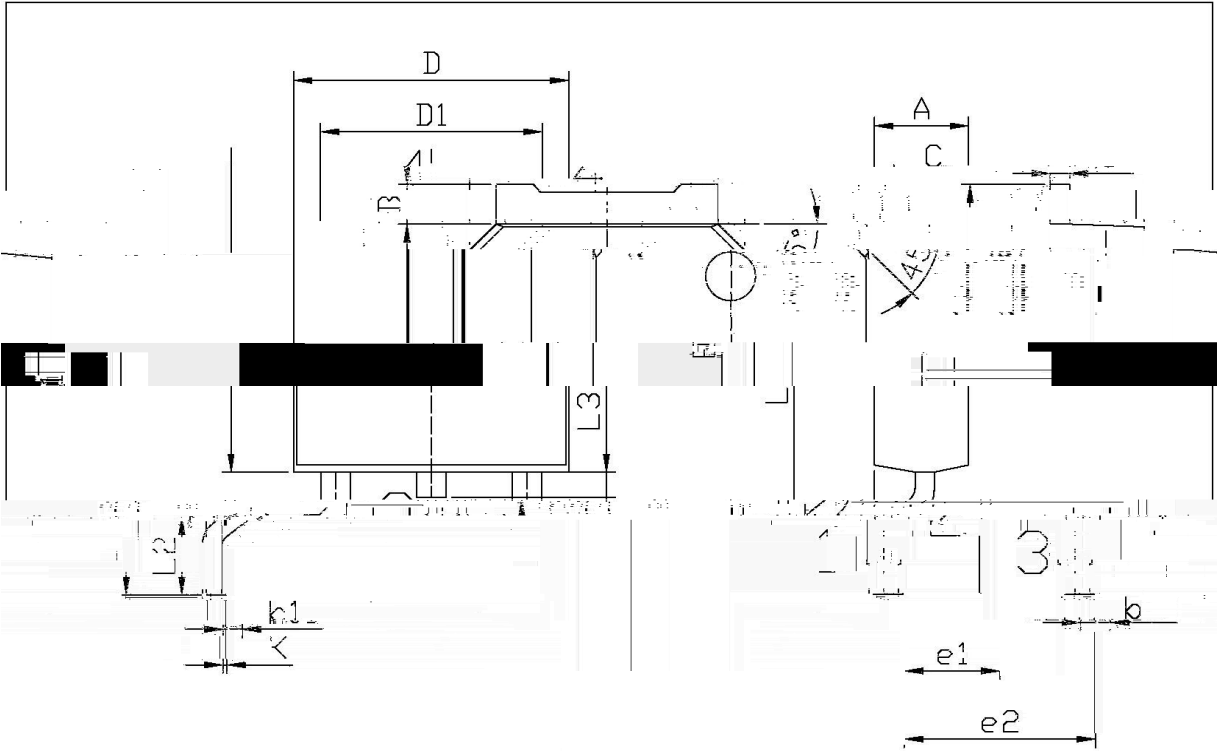


Figure 5: On-Resistance vs. Gate-Source Voltage Figure 6: Body Diode Characteristics

/ Electrical Characteristic Curve



/ Package Dimensions



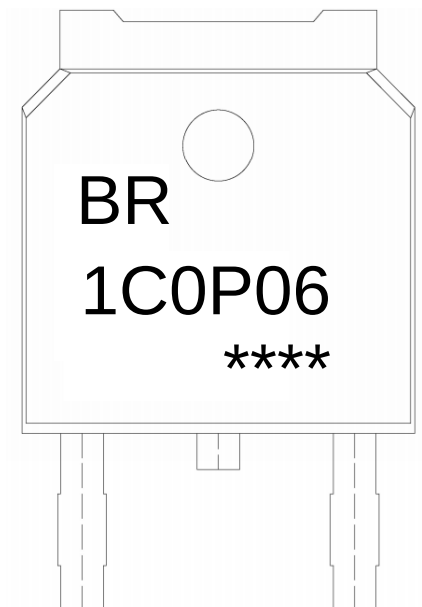
单位: mm

Symbol			Dimensions In Millimeters			Symbol			Dimensions In Millimeters		
			Min		Max				Min		Max
A			2.25		2.50	B			5.00		5.50
C			0.95		1.25	D			6.75		7.00
D			6.25		6.50	D1			6.25		6.50
e1			2.24		2.34	e2			4.40		4.73
b1			0.45		0.55	L1			9.85		10.35
L2			1.70		2.00	L3			0.50		0.75
D			6.25		6.50	L3			0.50		0.75
D			6.25		6.50	L3			0.50		0.75
D			6.25		6.50	L3			0.50		0.75

T0-252



/ Marking Instructions



BR

1C0P06

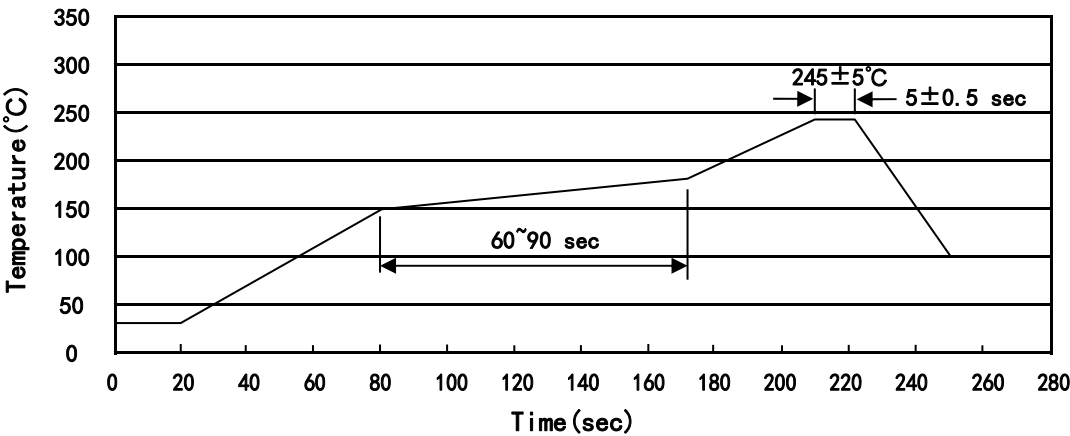
Note:

BR: Company Code

1C0P06: Product Type Code

****: Lot No. Code, code change with Lot No

() / Temperature Profile for IR Reflow Soldering(Pb-Free)



Note:

- 1

150 180

60 90sec;

1.Preheating:150~180 , Time:60~90sec.
- 2

245 5

5 0.5sec;

2.Peak Temp.:245 5 , Duration:5 0.5sec.
- 3

2 10 /sec.

3. Cooling Speed: 2~10 /sec.

/ Resistance to Soldering Heat Test Conditions

260 5 10 1 sec. Temp.:260±5 Time:10±1 sec

/ Packaging SPEC.

/ REEL

Package Type	Units					Dimension (unit mm ³)		
	Units/Reel	Reels/Inner Box	Units/Inner Box	Inner Boxes/Outer Box	Units/Outer Box	Reel	Inner Box	Outer Box
TO-252	2,500	2	5,000	6	30,000	13 ×16	360×360×50	380×335×366

/ TUBE

Package Type	Units					Dimension (unit mm ³)		
	Units/Tube	Tubes/Inner Box	Units/Inner Box	Inner Boxes/Outer Box	Units/Outer Box	Tube	Inner Box	Outer Box
TO-251/252	75	48	3,600	5	18,000	526×20.5×5.25	555×164×50	575×290×180

/ Notices